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ADVANCEDIPLOMA IN COMPUTER APPLICATIONS 1ST YEAR (ADCA)

TOPIC1:COMPUTERFUNDAMENTALS
TOPIC 2: DESK TOP PUBLISHING
TOPIC 3: HTML/DHTML, CSS & DIV
TOPIC4:DREAMWEAVER,INDESIGN,ILLUSTRATOR TOPIC 5: FLASH ANIMATION
PRACTICALLABASSIGNMENTANDVIVAVOICE

Computer Fundamentals

Computer:

Computer is an electronic device that is designed to work with Information. The term computer is derived from the Latin term **`computare'**, this means to calculate. **Computer cannot do anything without a Program**. It represents the decimal numbers through a string of binary digits. The Word 'Computer' usually refers to the Center Processor Unit plus Internal memory.

CHARLESBABBAGE

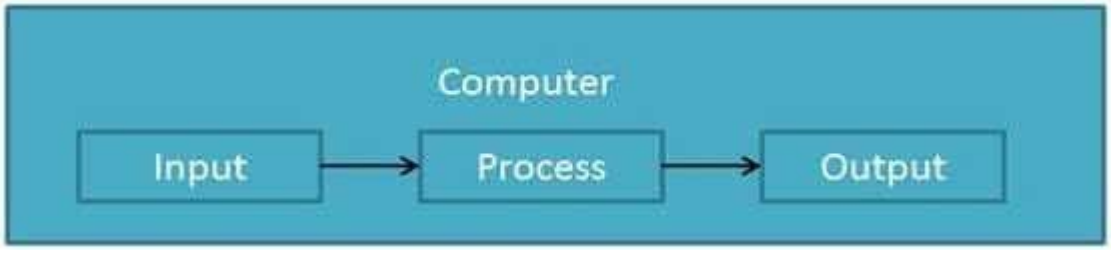
Charles Babbage, was an English polymath. He was a mathematician, philosopher, inventor and mechanical engineer, who is best remembered now for originating the concept of a programmable computer.

Considered a "father of the computer", Babbage is credited with inventing the first mechanical computer that eventually led to more complex designs. His varied work in other fields has led him to be described as "pre-eminent" among the many polymaths of his century.

FUNCTIONALITESOF COMPUTER:

Anydigitalcomputercarriesoutfivefunctionsingrossterms:

- Takesdataasinput.
- Storesthedata/instructionsinitsmemoryandcanusethemwhenrequired.
- Processthedataandconvertitintousefulinformation.
- Outputtheinformation.
- Controlalltheabovefoursteps.



Definition

Computer Systemis anelectronicdataprocessingdevicewhichdoesthefollowing:

- Acceptandstoreaninputdata.
- Processthedatainput.
- Andoutputtheprocesseddatainrequiredformat.

ADVANTAGESOFCOMPUTER:

FollowinglistdemonstratestheadvantagesofComputers:

High Speed

- Computerisaveryfastdevice.
- Itiscapableofperformingadditionofverybigdata.
- The computerhasunits of speed inmicrosecond,nanosecond andeven the picoseconds.
- Itcanperformmillionsofcalculationsinafewsecondsascomparedtomanwho can spend many months for doing the same task.

Accuracy

- Inadditiontobeingveryfast,computerisveryaccurate.
- Thecomputercanperformcalculations100%errorfree.
- Computersperformalljobswith100%accuracy.

Storage Capability

- Memoryisaveryimportantcharacteristicofacomputer.
- Thecomputerhasmuchmorestoragecapacitythanhumanbeings.
- Itcanstorelargeamountofdata.
- Itcanstoreanytypeofdatasuchasimages,videos,text,audioandanyothertype.

Diligence

- Unlikehumanbeings,acomputerisfreefrommonotony,tirednessandlackof concentration.
- Itcanworkcontinuouslywithoutcreatinganyerrorandboredom.
- Itcandorepeatedworkwithsamespeedandaccuracy.

Versatility

- Acomputerisaveryversatilemachine.
- Acomputerisveryflexibleinperformingthejobstobedone.
- Thismachinecanbeusedtosolvetheproblemsrelatingtovariousdifferentfields.
- Atoneinstant,itmaybesolvingacomplexscientificproblemandtheverynext moment it may be playing a card game.

Reliability

- Acomputerisareliablemachine.
- Modernelectroniccomponentshavefailurefreelonglives.
- Computersare designedto makemaintenanceeasy.

Automation

- Computerisanautomaticmachine.
- Automationmeansabilitytoperformthetaskautomatically.
- Onceaprogramisgiventocomputeri.estoredincomputermemory,theprogram and instruction can control the program execution withouthuman interaction.

ReductionInPaperWork

- Theuseofcomputersfordataprocessinginanorganizationleadstoreductionin paper work and speeds up the process.
- Asdatainelectronicfilescanberetrievedasandwhenrequired,theproblemof maintenance of large number of files gets reduced.

Reduction In Cost

- Thoughtheinitialinvestmentforinstallingacomputerishighbutitsubstantially reduces the cost of each of its transaction.

DISADVANTAGESOFCOMPUTER:

Followinglistdemonstratesthedisadvantagesof Computersintoday'sarena.

- Acomputerisamachineandhasnointelligenceofitsowntoperformanytask.
- Eachandeveryinstructionhastobegiventothecomputer.
- Acomputercannottakeanydecisiononitsown.

Dependency

- Itcanperformfunctionasinstructedbytheuser,soitisfullydependentonhuman being.

Environment

- Theoperatingenvironmentofcomputershouldbedustfreeandsuitabletoit.

NoFeeling

- Computerhasnofeelingoremotions.
- ItcannotmakeJudgmentbasedonfeelings,tastes,experiencesandknowledge unlike a human being.

APPLICATIONSOFCOMPUTER

Banking

TodayBankingisalmosttotallydependentoncomputer. Banks

provide following facilities:

- Bankson-lineaccountingfacility, whichincludecurrentbalances,deposits, overdrafts, interest charges, shares and trustee records.
- ATMmachinesaremakingiteveneasierforcustomerstodealwithbanks.

Insurance

Insurance companies are keeping all records up to date with the help of computer. The Insurance Companies, Finance houses and Stock broking firms are widely usingcomputers for their concerns.

InsuranceCompaniesaremaintainingadatabaseofallclientswithinformationshowing

- howtocontinuewithpolicies
- startingdateofthepolicies
- nextdueinstallmentofapolicy
- maturity date
- interestsdue
- survivalbenefits
- bonus

Education

Thecomputerhasprovidedalotoffacilitiesin theEducationSystem.

- The uses of computer provide a tool in the Education system is known as CBE (Computer Based Education).
- CBEinvolvesControl,DeliveryandEvaluationoflearning.
- The computer education is very familiar and rapidly increasing the graph of computer students.
- Therearenumberofmethodsinwhicheducationalinstitutionscanusecomputerto educate the students.
- It is used for prepare a database about student performance and analysis are carried out.

Marketing

InMarketingusesofcomputerarefollowing:

- **Advertising:** With computers, advertising professionals create art and graphics, writeandrevisecopyandprintanddisseminateadswiththegoalofsellingmoreproducts.
- **At Home Shopping**: At home shopping has been made possible through use of computerized catalogues that provide access to product information and permit direct entry of orders to be filled by the customers.

HealthCare

ComputershavebecomeimportantpartinallMedicalSystems.

Thecomputersarebeingusedinhospitalstokeeptherecordofpatientsandmedicines.It isalsousedinscanninganddiagnosingdifferentdiseases.ECG,EEG,Ultrasoundsand CT Scans etc. are also done by computerized machines.

Someofmajorfieldsofhealthcareinwhichcomputerareused:

- **Diagnostic System:** Computersareusedtocollectdataandidentifycauseof illness.
- **Lab-diagnostic System:** Alltestscanbedoneandreportsarepreparedby computer.
- **Patient Monitoring System:** Theseareusedtocheckpatient'ssignsfor abnormality such as in Cardiac Arrest, ECG etc.
- **Pharma Information System:** Computer checks Drug-Labels, Expiry dates, harmful drug side effects etc.
- Nowadays,computersarealsousedinperformingsurgery.

Engineering Design

Computersare widelyused in Engineeringpurposes.

One of major areas is CAD (Computer Aided Design). CAD provides creation, edition and modification of image. Some fields are:

- **Structural Engineering:** Requiresstressandstrain analysisrequiredfordesign of Ships, Buildings, Budgets, and Airplanes etc.
- **IndustrialEngineering:** Computersdealswithdesign,implementationand improvement of integrated systems of people, materials and equipments.
- **Architectural Engineering:** Computers help in planning towns, designing buildings, determining a range of buildings on a site using both 2D and 3Ddrawings.

Military

Computers are largely used in defense. Modern tanks, missiles, weapons etc. employ computerized controlsystems. Somemilitaryareaswherea computerhasbeen usedare:

- MissileControl
- MilitaryCommunication
- Militaryoperationandplanning
- SmartWeapons

Communication

Communication means to convey a message, an idea, a picture or speech that is received andunderstoodclearlyandcorrectlybythepersonforwhomitismeant.Somemainareas in this category are:

- E-mail
- Chatting
- Usenet
- FTP
- Telnet
- Video-conferencing

Governmentapplications

Computers play an important role in government applications. Some major fields in this category are:

- Budgets
- Salestaxdepartment
- Incometaxdepartment
- Male/Femaleratio
- Computerizationofvoterslists
- ComputerizationofDrivingLicensingsystem

- ComputerizationofPANcard
- WeatherForecasting.

TYPESOFCOMPUTER:

Computercanbebroadlyclassifiedbytheirspeedandcomputingpower.

Sr. No.	Type	Specifications
1	PC(PersonalComputer)	Single user computer system. Moderately powerful microprocessor.
2	WorkStation	Single user computer system. Similar to Personal Computer but have more powerful microprocessor.
3	MiniComputer	Multi-user computer system. Capable of supporting hundreds of userssimultaneously.
4	MainFrame	Multi-user computer system. Capable of supporting hundreds of userssimultaneously. Software technology is different from minicomputer.
5	Supercomputer	An extremely fast computer which can perform hundreds of millions of instructions per second.

INPUTDEVICES

FollowingarefewoftheimportantinputdeviceswhichareusedinComputerSystems

- Keyboard
- Mouse
- JoyStick
- Lightpen
- TrackBall
- Scanner
- GraphicTablet
- Microphone
- MagneticInkCardReader(MICR)

- OpticalCharacterReader(OCR)
- BarCodeReader
- OpticalMarkReader

OUTPUT DEVICES

Followingarefewoftheimportantoutputdeviceswhichareusedin ComputerSystems

- Monitors
- GraphicPlotter
- Printer

CPU(CENTRALPROCESSING UNIT)

- CPUisconsideredasthebrainofthecomputer.
- CPUperformsalltypesofdataprocessingoperations.
- Itstoresdata,intermediateresultsandinstructions(program).
- Itcontrolstheoperationofallpartsofcomputer.

CPU itself hasfollowing threecomponents.

- MemoryOrStorage Unit:
- ControlUnit
- ALU(ArithmeticLogicUnit)

Memoryor Storage Unit:
Thisunitcanstoreinstruction,dataandintermediateresults.Thisunitsuppliesinformation totheotherunitsofthecomputerwhenneeded.Itisalsoknownasinternalstorageunitor main memory or primary storage or Random access memory (RAM).

Its size affects speed, power and capability. There are primary memory and secondary memory two types of memories in the computer.

FunctionofMemoryUnitis:

Itstoresallthedatatobeprocessedandtheinstructionsrequiredforprocessing. It stores

intermediate results of processing.

Itstoresfinalresultsofprocessingbeforetheseresultsarereleasedtoanoutputdevice. All inputs

and outputs are transmitted through main memory.

Control Unit:
Thisunitcontrolstheoperationsofallpartsofcomputer.Itdoesnotcarryoutanyactual data processing operations.

Functionsofthisunitare

Itisresponsibleforcontrollingthetransferofdataandinstructionsamongotherunitsofa computer.

Itmanagesandcoordinatesalltheunitsofthecomputer.

Itobtainstheinstructionsfromthememory,interpretsthemanddirectstheoperationof the computer.

ItcommunicateswithInput/outputdevicesfortransferofdataorresultsfromstorage. It does

not process or store data.

ALU(ArithmeticLogicUnit):

Thisunitconsistsoftwosub-sectionsnamely

- Arithmetic section
- LogicSection

ARITHMETICSECTION
FunctionofArithmeticsectionistoperformarithmeticoperationslikeaddition,subtraction, multiplication and division. All complex operations are done by making repetitive use of above operations.

LOGIC SECTION
Function of logic section is to perform logic operations such as comparing, selecting, matching and merging of data.

Units of Computer MemoryMeasurements

1Bit=BinaryDigit(BitsofComputerare0and1) 8 Bits
= 1 Byte
1024Bytes=1KB(KiloByte)
1024 KB = 1 MB (Mega Byte)
1024 MB = 1 GB(Giga Byte)

Computer Memory

In computing, **memory** refers to the physical devices used to store programs (sequences ofinstructions)ordata(e.g.programstateinformation)onatemporaryorpermanentbasis for use in a computer or other digitalelectronic device. The term primary memory is used for the information in physical systems which function at high-speed (i.e. RAM), as a distinction from secondary memory, which are physical devices for program and datastorage which are slow to access but offer higher memory capacity. Primary memory stored on secondary memory is called "virtual memory". An archaic synonym for memory is **store**.

The term "memory", meaning primary memory is often (but not always) associated with addressable semiconductor memory, i.e. integrated circuits consisting of silicon-based transistors, used for example as primary memory but also other purposes in computers and other digitalelectronic devices. There are two main types of semiconductor memory: volatile and non-volatile. Examples of non-volatile memory are flash memory (sometimes used as secondary, sometimes primary computer memory) and ROM/PROM/EPROM/EEPROM memory (used for firmware such as boot programs). Examples of volatile memory are primary memory (typically dynamic RAM, DRAM), and fast CPU cache memory (typically static RAM, SRAM, which is fast but energy-consuming and offer lower memory capacity per area unit than DRAM).

Volatile memory

Volatile memory is computer memory that requires power to maintain the stored information. Most modern semiconductor volatile memory is either Static RAM or dynamic RAM.SRAMretainsitscontentsaslongasthepowerisconnectedandiseasyto interface to but uses sixtransistors per bit. Dynamic RAM is more complicated to interface to and control and needs regular refresh cycles to prevent its contents being lost. However, DRAM usesonlyone transistoranda capacitorperbit, allowing it to reachmuch higher densities and, with more bits on a memory chip, be much cheaper per bit. SRAM is not worthwhile for desktop system memory, where DRAM dominates, but is used for their cache memories. SRAM is commonplace in small embedded systems, which might only need tens of kilobytes or less. Forthcoming volatile memory technologies that hope to replaceorcompetewithSRAMandDRAMincludeZ-RAM,TTRAM,A-RAMandETARAM.

Non-volatilememory

Non-volatile memory is computer memory that can retain the stored information even when not powered. Examples of non-volatile memory include read-only memory(ROM), flash memory, most types of magnetic computer storage devices (e.g. hard disks, floppydiscs and magnetic tape), optical discs, and early computer storage methods such aspaper tape and punched cards.

OperatingSystem

An operating system is a program that acts as an interface between the software and the computer hardware.

- Itisanintegrationsetofspecializedprogramsthatareusedtomanageoverall resources and operations of the computer.

- It is specialized software that controls and monitors the execution of all other programs that reside in the computer, including application programs and other system software.

ObjectivesofOperating System

- Makingacomputersystemconvenienttouseinanefficientmanner
- Tohidethedetailsofthehardwareresourcesfromtheusers
- Toprovideusersaconvenientinterfacetousethecomputersystem.
- To act as an intermediary between the hardware and its users and making it easier for the users to access and use other resources.
- Managetheresourcesof acomputersystem.
- Keep track of who is using which resource, granting resource requests, according for resource using and mediating conflicting requests from different programs andusers.
- Theefficientandfairsharingofresourcesamongusersandprograms

CharacteristicsofOperatingSystem

- **MemoryManagement**--Itkeepstracksofprimarymemoryi.ewhatpartofitarein use by whom, what part are not in use etc. Allocates the memory when the process or program request it.
- **Processor Management** -- Allocate the processor(CPU)toaprocess. De- allocate processor when processor is no longer required.
- **Device Management** --Keeptracksof alldevices. Thisisalsocalled I/O controller. Decides which process gets the device when and for how much time.
- **File Management** -- Allocates the resources. De-allocates the resources. Decides who gets the resources.
- **Security** -- By means of passwords & similar other techniques, preventing unauthorized access to programs & data.
- **Job accounting** -- Keeping track of time & resources used by various jobs and/or users.
- **Control over system performance** -- Recording delays between request for a service & from the system.
- **Interaction with the operators** --Theinteractionmaytakeplaceviatheconsoleof the computer in the form of instructions. Operating System acknowledges the same, do the corresponding action and inform the operation by a displayscreen.
- **Error-detecting aids** -- Production of dumps, traces, error messages and other debugging and error-detecting methods.

- **Coordination between other software and users** --Coordinationandassignment of compilers, interpreters, assemblers and other software to the various users of the computer systems.

WINDOWS7

Windows 7 isanoperatingsystem producedbyMicrosoftforuseonpersonalcomputers, including home and business desktops, laptops, net books, tablet PCs, and media center PCs. It was released to manufacturing on July 22, 2009, and became generally available retail worldwide on October 22, 2009, less than three years after the release of its predecessor, Windows Vista. Windows 7's server counterpart, Windows Server 2008 R2, was released at the same time. Windows 7 is succeeded by Windows 8.

Unlike Windows Vista's many new features, Windows 7 was an incremental upgrade designedtoworkwithVista-compatibleapplicationsandhardware.Presentationsgivenby Microsoft in 2008 focused on multi-touch support, an updated Windows shell with a new taskbar, referred to internally as the Superbar, a home networking system called Home Group, and performance improvements. Some standard applications that have been included with prior releases of MicrosoftWindows, including Windows Calendar, WindowsMail, Windows Movie Maker, and Windows Photo Gallery, are not included in Windows 7; most are instead offered separately at no charge as part of the Windows Essentials suite.

InstallWindows7

ManypeoplehavecomputersthatcomewithWindows7sotheymayneverhavetoinstall it. However, you may need to install Windows 7 if:

- Youreplacedyourharddiskdrivewithanewharddiskdrivethatdoesnothave Windows 7 installed.
- YouarereinstallingWindows7onacomputerbecauseyouwanttocleanoffyour hard drive and remove any unwanted programs, such as spyware.
- Youpurchasedacomputerwithoutanoperatingsystem.

Pre-installation checklist

Beforeyoubegintheinstallationprocess,usethischecklisttomakesurethatyouare prepared:

- YouhavetheWindows7CD.
- Youhavetheproductkeyavailable.Theproductkeyislocatedonyour Windows7 CD case and is required to install and activate Windows 7.
- Your computer hardware is set up. At a minimum, you should connect your keyboard,mouse,monitor,andCDdrive.Ifavailable,youshouldconnectyour computer to a wired network.
- You haveWindows7 driversavailable. DriversaresoftwarethatWindows7 usesto communicate with your computer's hardware. If you do not have drivers available, Windows 7 may already include drivers for your hardware. If not, you shouldbe

abletodownloadthemfromyourhardwaremanufacturer'swebsiteafteryousetup Windows 7.

- IfyouarereinstallingWindows7onanexistingcomputer,youneedabackupcopy of your files and settings. The installation process will delete all of your files. You can use the File and Settings Transfer Wizard to store your files and settings on removable media and then restore them after installation iscomplete.

Installation process

InstallingWindows7cantakeuptotwohours.Tomaketheprocessmore manageable,it has been broken up into several sections.

ToBeginInstallation:

1. InserttheWindows7CDintoyourcomputerandrestartyourcomputer.
2. IfpromptedtostartfromtheCD,pressSpacebar.Ifyoumisstheprompt(itonly appears for a few seconds), restart your computer to tryagain.
3. Windows7Setupbegins.Duringthisportionofsetup,yourmousewillnotwork,so you must use the keyboard. On the Welcome to Setup page, pressEnter.
4. On theWindows 7 Licensing Agreement page, read the licensing agreement. Press the Page Down key to scroll to the bottom of the agreement. Then pressF8.
5. This page enables you to select the hard disk drive on which Windows 7 will be installed. Once you complete this step, all data on your hard disk drive will be removedandcannotberecovered.Itisextremelyimportantthatyouhavearecent backup copyof your files before continuing. When you have a backup copy, press D, and then press L when prompted. This deletes your existing data.
6. PressEnter toselectunpartitionedspace, whichappearsbydefault.
7. Press Enteragain to select Formatthepartition usingthe NTFSfilesystem, which appears by default.
8. Windows 7 erases your hard disk drive using a process called formatting and then copiesthesetupfiles.Youcanleaveyourcomputerandreturnin20to30minutes.

ToContinuethe Installation

1. Windows7restartsandthencontinueswiththeinstallationprocess.Fromthispoint forward, you can use your mouse. Eventually, the Regional and Language Options page appears. Click Next to accept the default settings. If you are multilingual or preferalanguageotherthanEnglish,youcanchangelanguagesettingsaftersetup is complete.
2. On the Personalize Your Software page, type your name and your organization name.Someprogramsusethisinformationtoautomaticallyfillinyournamewhen required. Then, click next.
3. On the Your Product Key page, type your product key as it appears on your Windows7 CDcase.The productkeyisuniqueforeveryWindows7 installation. Then, click Next.
4. On the Computer Name and Administrator Password page, in the Computer name box, type a name that uniquely identifies your computer in your house, such as FAMILYROOM or TOMS. You cannot use spaces or punctuation. If you connect your computer to anetwork, you will use thiscomputernametofindsharedfiles

and printers. Type a strong password that you can remember in the Administrator passwordbox,andthenretypeitintheConfirmpasswordbox.Writethepassword down and store it in a secure place. Click Next.

5. OntheDateandTimeSettingspage,setyourcomputer'sclock.Then,clickthe Time Zone down arrow, and select your time zone. Click Next.
6. Windows7willspendaboutaminuteconfiguringyourcomputer.Onthe Networking Settings page, click next.
7. OntheWorkgrouporComputerDomainpage,clickNext.

To complete the installation

1. Windows 7 will spend 20 or 30 minutes configuring your computer and will automaticallyrestartwhenfinished.When theDisplaySettingsdialogappears,click OK.
2. WhentheMonitorSettingsdialogboxappears,clickOK.
3. Thefinalstageof setup begins.On theWelcometo MicrosoftWindowspage, click Next.
4. On the Helpprotect yourPCpage,clickHelpprotectmyPCbyturningon Automatic Updates now. Then, click Next.
5. Windows7willthencheckifyouareconnectedtotheInternet:
   - If you are connected to the Internet, select the choice that describesyour networkconnectiononthewillthiscomputerconnecttotheInternetdirectly, orthrougha networkpage. If you're not sure,acceptthe defaultselection, and click Next.
   - If you use dial-up Internet access, or if Windows 7 cannot connect to the Internet,youcanconnecttotheInternetaftersetupiscomplete.OntheHow will this computer connect to the Internet? page, click Skip.
6. Windows 7 Setup displays the Ready to activate Windows page. If you are connectedtotheInternet, clickYes, and thenclickNext. If youarenot yet connectedtotheInternet,clickNo,clickNext,andthenskiptostep24.Aftersetup iscomplete,Windows7willautomaticallyremindyoutoactivateandregisteryour copy of Windows 7.
7. OntheReadytoregisterwithMicrosoftpage,clickYes,andthenclickNext.
8. OntheCollectingRegistrationInformationpage,completetheform.Then,click Next.
9. OntheWho willusethiscomputerpage,typethenameofeachpersonwhowill usethecomputer.Youcanusefirstnamesonly,nicknames,orfullnames.Then click Next.
10. OntheThankyou!Page,clickFinish.

    Windows 7 setup is complete. You can log on by clicking your name on the logon screen. If you've installedWindows 7 on a new computer or new hard disk drive, youcannowusetheFileandSettingsTransferWizardtocopyyourimportantdata to your computer or hard disk drive.

MS-DOS

Short for **Microsoft Disk operating system**, **MS-DOS** is a non-graphical command line operating system derived from 86-DOS that was created for IBM compatible computers. MS-DOSoriginallywrittenby TimPetersonandintroducedby MicrosoftinAugust 1981 and was last updated in 1994 when MS-DOS 6.22 was released. Today, MS-DOS is no longer used; however, the command shell, more commonly known as the **Windows command line** is still used by many users.

Today, most computer users are only familiar with how to navigate Microsoft Windows using the mouse Unlike Windows, MS-DOS is a command-line and is navigated by using MS-DOS commands. For example, if you wanted to see all the files in a folder in Windows you would double-click the folder to open the folder in Windows Explorer. In MS-DOS, to view that same folder you would navigate to the folder using the CD command and then list the files in that folder using the dircommand.

DOS Commands

MS-DOS has a relatively small number of commands, and an even smaller number of commonly used ones. Moreover, these commands are generally inflexible because, in contrast to Linux and other Unix-like operating systems, they are designed to accommodate few options or arguments (i.e., values that can be passed to the commands).

Some of the most common commands are as follows (corresponding commands on Unix-like operating systems are shown in parenthesis):

CD-changesthecurrentdirectory(cd)
COPY - copies a file (cp)
DEL-deletesa file(rm)
DIR-listsdirectorycontents(ls)
EDIT-startsaneditortocreateoreditplaintextfiles(vi,vim,ed,Joe) FORMAT -
formats a disk to accept DOS files (mformat)
HELP-displaysinformationaboutacommand(man,info) MKDIR -
creates a new directory (mkdir)
RD-removesadirectory(rmdir) REN -
renames a file (mv)
TYPE-displayscontentsofafileonthescreen(more,cat)

OtherDOSCommand commonlyused are:

Append
Theappendcommandcanbeusedbyprogramstoopenfilesinanotherdirectoryasif they were located in the current directory.
Attrib
Theattribcommandisusedtochangetheattributesofasinglefileoradirectory.
Break
ThebreakcommandsetsorclearsextendedCTRL+Cchecking.
Call
Thecallcommandisusedtorunascriptorbatchprogramfromwithinanotherscriptor batch program.

Thecallcommandhasnoeffectoutsideofascriptorbatchfile.Inotherwords,running the call command at the DOS prompt will do nothing.

Chcp

Thechcp command displaysorconfigures the active codepage number.

Chdir

Thechdircommandisusedtodisplaythedriveletterandfolderthatyouare currentlyin. Chdircanalso be usedto change thedrive and/ordirectorythat youwant to workin.

Chkdsk

Thechkdskcommand,oftenreferredtoascheckdisk,isusedtoidentifyandcorrect certain hard drive errors.

Choice

Thechoicecommandisusedwithinascriptorbatchprogramtoprovidealistofchoices and return the value of that choice to the program.

Cls

Theclscommandclearsthescreenof allpreviouslyenteredcommandsandothertext.

Dir

Thedircommandisusedtodisplayalistoffilesandfolderscontainedinsidethefolder that you are currently working in.

The dir command also displays other important information like the hard drive's serial number,thetotalnumberoffileslisted,theircombinedsize,thetotalamountoffreespace left on the drive, and more.

DIR[drive:][path][filename][/P][/W][/A[[:]attributes]][/O[[:]sortorder]][/S][/B][/L][/V]

[drive:][path][filename]	Specifiesdrive,directory,orfilestolist.(Couldbeenhancedfile specification or multiple file specs)
/P	Pauses aftereachscreenfulofinformation.
/W	Useswidelistformat.
/A	attributes: DDirectories RRead-onlyfiles HHidden files AFilesreadyforarchiving S System files -Prefixmeaningnot
/O	Listbyfilesinsortedorder,sortorder: N By name (alphabetic) SBysize(smallestfirst) EByextension(alphabetic) DBydateandtime(earliestfirst) GGroupdirectoriesfirst -Prefixtoreverseorder AByLastAccessDate(earliestfirst)
/S	Displaysfilesinspecifieddirectoryandallsubdirectories.
/B	Usesbareformat(noheadinginformationorsummary).
/L	Useslowercase.
/V	Verbosemode.

MS-OFFICE

(MsWord, Msexcel,MsPowerPoint)

MicrosoftOfficeis an office suite of desktop applications, servers andservicesfor the MicrosoftWindows and OS X operating systems, introduced by Microsoft on August 1, 1989. Initiallya marketingterm fora bundledset of applications, thefirst versionof Office contained Microsoft Word, Microsoft Excel, and Microsoft PowerPoint. Over the years, Office applications have grown substantially closer with shared features such as acommonspellchecker,OLEdataintegrationandMicrosoftVisualBasicfor Applications scripting language. Microsoft also positions Office as a development platform for line-of-business software under the Office Business Applications brand. Office is reported to now be used by over a billion people worldwide.

ThecurrentversionsareOffice2013forWindows,releasedonOctober11,2012 andOffice2011forOSX,releasedOctober26,2010.On24October2012,theRTMfinal code of Office 2013 Professional Plus has been released to TechNet and MSDN subscribersfordownload.On15November2012,the60-daytrialversionofOffice2013 ProfessionalPluswasreleasedfordownload.

MS-WORD

Microsoft →ord is an example of a program called a "word processor." The key benefit to using a word processor is that you can make changes easily, including correcting spelling; adding, deleting, formatting, and relocating text; and inserting images. Once you create a document, you can effortlessly print it (as many copies as you want!), save it for later modifications, or send it to a friend via e-mail. Microsoft Word is a very powerful word processor—this handout was created using just a small number of its features!

Microsoft WordisavailableonbothPCsandMacs,sowhatyoulearninclasstoday should be applicable to any computer you use. The program may look slightly different dependingontheversionandcomputerthatyou'reusing,butMicrosoft→ordwillfunction in the same basic ways. There are other word processors out there, including OpenOffice.org Writer, WordPerfect, Apple Pages, and WordPad. They have manyfeatures in common with MicrosoftWord, and you should feel free to choose any program you prefer.

OpeningMicrosoft Word

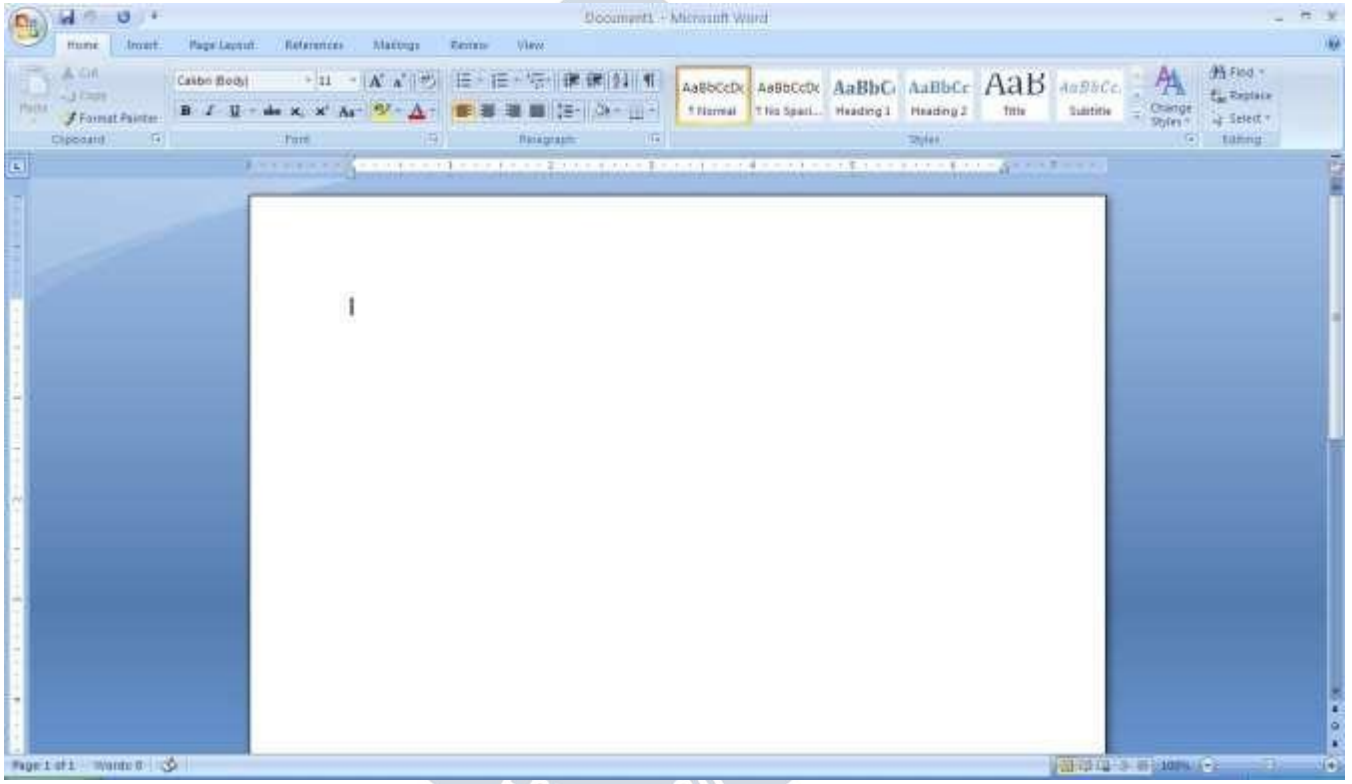
To get started with Microsoft →ord (sometimes called "MS →ord"), you will need to locate and open the program on your computer. To open the program, point to →ord's icon on thedesktopwithyourmouseanddouble-clickonitwiththeleftmousebutton.Ifyoudon't see the MS →ord icon on your desktop, you'll have to access the program from the Start Menu. Click on the button in the bottom left corner to pull up the Start Menu. You should seetheMS→ordiconhere,soclickonitoncewithyourleftbutton.Ifyoustilldon'tseeit, click on "All Programs" and scroll through the list of programs until you find it. Click once with your leftbutton to open the program. Occasionally, MicrosoftWord will be in a folder

called "Microsoft Office" or something similar—this will make one more step between "All Programs" and "Microsoft →ord."

MS→ordwillthenopenablankpagecalled"Document1."

This is an image of the upper-left corner of MS Word. This box features two important pieces of information: the name of the file that you are currently working on (in this case, "Document 1" since we have not yet renamed it) and which program you are using ("Microsoft →ord").There should nowbe a blinkingline in the top left cornerof the partof the screen that looks like a sheet of paper. This means you will be able to type in this space!

MicrosoftWordFeatures



TheTitleBar

Thisisaclose-upviewoftheTitleBar,wherefileinformationislocated.Itshowsthename ofthefile(here,"Microsoft→ord")andthenameoftheprogram("Microsoft→ord").Notice the threebuttonsonthe right side, controllingthe size and closingoftheprogram.

Minimize: Left click this button to shrink the window down to a small button that will appear in the task bar

Maximize: Left click this button to make the window as large as it can be—it should take up your entire screen.

Close:Left-clickthisbuttontoclosethewindow.Theprogramwillcloseandstoprunning. Make sure you save your work first!

RestoreDown:

Left-clickthisbuttontomakethewindowsmallerwithoutminimizingit.ThetabbedRibbon menu system is how you navigate through Word and access various Word commands. If

you have used previous versions of Word, the Ribbon system replaces the traditional menus.

The FileMenu

In Microsoft Office 2007, there was something called the Microsoft Office Button ( ) in the top left-hand corner. In Microsoft Office 2010, this has been replaced with a tab in the Ribbon called "File."

When you left-click on this tab, a drop-down menu appears. From this menu, you can perform the same functions as were found under the Microsoft Office Button menu, such as: Create a new document, open files, save files in a variety of ways, and print.

QuickAccessToolbar

On the top left-hand side of the Title Bar, you will see several little icons above the File menu. These let you perform common tasks, such as saving and undoing, without having tofindtheminamenu.→e'llgooverthemeaningsof theiconsalittlelater.

TheHomeTab

The most commonly used commands in MS Word are also the most accessible. Some of these commands available in the Home Tab are: The Home Tab Toolbar offers optionsthat can change the font, size, color, alignment, organization and style of the text in the document.Forexample,the"TimesNewRoman"IndicatestheFONTofyour text,the"12" indicates the SIZE of your text; etc. We will go over how to use all of these options to formatyourtextinalittlewhile.Eachoftheseoptionsexpandsintoamenuifyouleft-click onthetinydown-arrowinthebottomrightcornerof thewindow.Therulerisfoundbelow the Ribbon. The ruler tells you where you are on the page, along with the dimensions of the overall document. Just like a real piece of paper, the default setting is 8.5 x11 inches, and the margins have been incorporated for you. Similar to most options in MSWord, this is entirely customizable and the user can create a document of anydimensions.

Keyboard Review

In order to use MSWord effectively, you must input commands usingboth the mouseand the keyboard.The above image of a keyboard should look similar to the keyboard infront ofyou;learningjustafewcertainkeyswillhelptoimproveyourefficiencyintyping,aswell as present you with more options within the program. The following is a list of commonly used keys that have special functions in MS Word (key functions can change dependingon which program you are using) :

1. Backspace:Thiskeydeleteslettersbackward.

2. Delete:Thiskeydeleteslettersforward.

3. Shift:Thiskey,whenpressedWITHanotherkey,willperformasecondary

Function.

4. Spacebar:Thiskeyentersaspacebetween wordsorletters.

5. Tab:Thiskeywillindentwhatyoutype,ormovethetexttotheright.Thedefault

Indentdistanceisusually½inch.

6. CapsLock:Pressingthiskeywillmakeeveryletteryoutypecapitalized.

7. Control(Ctrl):Thiskey,whenpressedWITHanotherkey,performsashortcut.

8. Enter:Thiskeyeithergivesyouanewline,orexecutesacommand(pressedin MS

Word, it begins a new line).

9. NumberKeypad:Theseareexactlythesameasthenumbersatthetopofthe

Keyboard; some people just find them easier to use in this position.

10. ArrowKeys:Likethemouse,thesekeysareusedtonavigatethroughadocument.

MICROSOFT WORDBASICS

TypingText

To enter text, type just as you would if you were using a typewriter. To capitalize a letter, hold down the SHIFT key while typingthe letter. Or, press the CAPS LOCK keyon the left-hand side of your keyboard. You will have to press the CAPS LOCK key again—once you are done capitalizing—to remove the lock. You do not need to press ENTER to start a new line—MicrosoftWordwillautomaticallywrap yoursentence attheendof the line.Tomove thecursorfromitspositionattheendof yoursentencetoanywhere elseonthepage,use the mouse or the arrow keys to move the cursor where you want the letters or spaces to be(left-clickthemousetoplacethecursor)andthentypewhatyouwanttoadd—thetext will automatically adjust to include it. Press ENTER to start a new paragraph (this is sometimes called a "carriage return").

Deleting Text

While typing a document, sometimes you will make a mistake. Unlike a typewriter, MS Word can delete text on the screen and leave no trace—it is as if you never typed on the page in thefirstplace.Thereare two different buttons on the keyboard that will allow you to erase text. They are the "Delete" key and the "Backspace" key (#s 1 and 2 on the keyboard map on page. The "Backspace" key deletes words to the LEFTofthecursor, and the "Delete" key deletes words to the RIGHT of the cursor.

BACKSPACE↔ DELETE

Let'sassumethattheverticallinedissectingtheword"creative"intheexampleaboveis

Ourcursor.Pressingthe "Backspace"keywillerase "a,"^"e,"^"r,"^"c,"and so on,moving

LEFT.The "Delete"keywillerase "t,"^"i,"^"v,"^"e,"and soon,moving RIGHT.

Todeleteawholechunkoftextatonce,left-clickwithyourmouseanddragtohighlight

asectionoftext.Thensimplypress"Backspace"or"Delete"andallofthehighlighted Text will

disappear.

Undoingand Redoing

The UNDO and REDO features of Microsoft Windows applications are great tools to rely on. The program will keep a list of the last 25 commands that you have performed, and it allowsfortaking"onestep"backwardsinordertoerasewhatyouhavejustdone.Clickon the UNDO button in the Quick Access Toolbar to go back one step. Click on the REDO button in the Quick Access Toolbar to go forward one step.

FormattingText

Changing the look of what you've written is called "formatting." This can include changing the text style, size, color, and more. This is a sentence that features many different fonts. This is a sentence that features many different sizes. From the Home Tab, the "B" will makeyourtextBOLD,the"I"willputitinitalics,andthe"←"willaddanunderlinetoyour text. These features do not have to be used independently of each other—in other words, you can bold, underline, and italicize a single piece of text. The alignment of the text can be altered using the buttons with the horizontal lines on them. You can align text To the LEFT, To the CENTER and to the RIGHT.

In order to apply certain stylistic or formatting changes to text, you must first HIGHLIGHT the text. This is a common procedure in Microsoft Windows applications, And because it is so useful, it is a skill worth practicing. You can also change the font color by clicking on the appropriate buttons in the

Formatting Toolbar. Experiment and remember—you can always start over with a fresh, newdocument,sodon'tworryaboutmakingmistakes!Ifyoudo,however,thereisalways theincredible"←NDO" tool.Cutting,Copying,andPastingTextinMS→ord,youcanC←T or COPY text from one area of the document and save that text to be PASTED elsewhere (these commands are found on the Home Tab).When you CUT text, you actually delete it from where you took it, as opposed to COPYING it, which makes a copy of yourselection.

WhenyouCUTorCOPYtext,itisstoredontheCLIPBOARD.TheClipboardisatoolin MS Word that stores cuts and copies of your work, to be pasted in other places in the document.OnceyourselectionisontheCLIPBOARD,youcanPASTEitasmanytimes as you want! CUTTING a selection will place it on the clipboard, just in case you want to PASTE it elsewhere. To CUT a selection, firsthighlight it. Then, click on the CUT icon from theHomeTab.Thehighlightedtextwilldisappear,asyouhavejustcutitout,butacopyis now on your clipboard, and MS Word is waiting for you to paste it somewhereelse.

To PASTE this cut selection, place your cursor where you want the selection to go. Clickon the PASTE icon from the Home Tab toolbar, and it will pop the text into place, right whereyouhaveyourcursor.ToCOPY,simplyfollowthosesamesteps,replacingthe CUTcommandwithCOPY.TheCOPYcommandwillnotalteryouroriginalselectionat all, as it simplymakesa copyof theselectionwithout changingor deletingit in anyway.

DOINGMORE WITHMICROSOFT WORD

InsertingImagesandClipArt

With Microsoft Word, you can insert pictures in your document using the Insert Tab toolbar.↔oucaninsertpicturesfromthe"ClipArt"albumthatcomeswiththeprogram,or you can insert pictures from a file that you have previously saved on a disk or elsewhere on the computer (e.g., the My Pictures folder).Clip Art is a collection of cartoon and computer-generated images that cover a broad array of commonly needed icons and pictures. These include business, holiday, nature, entertainment, academic and other themes, along with standard bullets and symbols.

To insert a clip art picture into a Microsoft Word document, you will first need to place your cursor (left-click) where you wish to insert you picture in your document. Then, from the Insert tab on the Ribbon, click on **"Clip Art."** A Clip Art search box will appear on the right side of your screen. From here, you can enter a search word for the picture you wouldliketo find.Thenclick"Go."Thiswillshowalltheoptionsofpicturesyoucaninsert. Whenyouseeapieceofclipartthatyoulike,clickonit,anditwillautomaticallyinsertinto your document, in the exact place where you left the cursor. To resize your image, grab one of the corners of the image by left-clicking and holding—drag it to your desired size and fine-tune the placement. The cursor will change from a typing icon to a double arrow when it can be used to resize an image.

Dragthecornertowardtheupper-leftcornerofthescreen,andtheimagewillgrow.Drag towardthebottom-right,anditwillshrink.Youcanmovetheimagetoanotherplaceinthe document by left-clicking and holding on the center of it; drag it to its desired location. More options, such as aligning the image with text (or special effects like wrapping text around or through an image) can be found by clicking on the picture, and then choosing the Picture Tools Tab. You can also insert a photograph or other images from your files using this same process. On the Insert Tab, click on Picture and locate the files that you want to include.

ModifyingLine Spacing

Line spacing in Word refers to the amount of space between lines of text. The default in Word 2010 is 1.15 spacing, which leaves a little bit more space than single-spacing, or whatyou wouldfindinanormalbook.Singlespacing is generallyeasyfortheeyetoread. There may be times, however, when you want to change this spacing. One common option is to double-space text: This text is double-spaced. Double-spacing is especially useful if someone else is proof reading your document. It allows for more room to write comments on the page.

Tochange theline spacing:

1. Selecttextyouwanttoformatbyhighlightingit.

2. OntheHomeTab,clickontheLineSpacingbuttonintheParagraphgroup.

3. Choose the spacing you want from the menu that appears. For more options, select Line Spacing Options. In the dialog box that appears, you can choose other spacing options, including spacing between paragraphs. This can be done by changing the values in the Before and After boxes.

CreatingBulletedand NumberedLists

Wordallows you to createlists within yourdocumentthat can be organized with bullets or numbers. Lists are useful for presenting text that wouldn't make the most sense in paragraph form (for example, step-by-step instructions) or for emphasizing key points Bulletsareusuallysmallcirclesatthebeginningof iteminalist,andnumbersareusedfor lists that are arranged in sequential order. Here's an example of a bulleted list:

- Bananas
- Milk
- Eggs
- IceCream

Tocreatealist:

1. On the Home tab, select either the Bullets or Numbering buttons from the Paragraph group. If you want to choose a particular style for your bullets or numbers, click on the triangle next to thebutton and choose astyle from themenuthatappears.

2. You will see the first bullet or number appear on your document. Type your first line of text and then hit Enter.

3. Another bullet or number will appear automatically. Type your next line of text and hit Enter.

4. Whenyouhavefinishedyourlist,hitEntertwicetoendthebulletsornumbering.

ChangingViewsandOverall Look

There will be times when you need to create documents that don't fit on a standard piece of paper (8.5" by 11").

ClickonthePageLayoutTab.

From this menu, you can alter the margins, width, height, and orientation (portrait = 11"14long; landscape = 11" wide) of the document, as well as choose from a variety of templates, different types of paper, and document styles that come with the program. To change the orientation of your page, clickon the Orientation button.

Click on Landscape from the drop-down box that appears. Your document should now be in landscape position. If you wish to return to portrait orientation, go through the same steps, clickingon theLandscape option instead of Portrait. If you would like to change the displayof yourdocumentorzoominandoutwithoutaffectingthewayyourdocumentwill

print, you can dothatfrom the ViewTab.Anything you changefrom the ViewTab willnot changethewayyourdocumentprintsout.Soifyouwantyourtext tobebiggerwhenyou printoutthedocument,makesuretochangethesizeof the fontinsteadof thezoom.

SpellingandGrammar Check

Onebenefitof usingacomputerizedwordprocessorisitsabilitytorecognize,change,and give advice about your writing. MS Word has utilities that can check your spelling and grammar against a master database, and can offer advice on a variety of different grammatical styles. **MS Word** automatically underlines any words that it does not recognize in red, assuming that they are not spelled correctly, and underlines in green if it does not recognize the grammatical pattern, assuming that the sentence does not make sense.

Forexample:Inthiscase,"jumping"shouldread"jump"and"laziy"shouldbe"lazy."Ifyou right click on the word, a menu with pop up with options, including "Ignore" if you do not want help on this specific phrase or agree with the suggestion. You can also choose toadd words to the MS Word spellingdatabase, if you aregoingto use them often and don't want them to be flagged as misspelled every time—this is especially useful for names, as MS Word often interprets these as misspellings. The spelling and grammar tools can be found in the Review Tab

USINGMICROSOFTWORD

Microsoft →ord is an example of a program called a "word processor." →ord processors are used to create and print text documents in much the same way that you would use a typewriter.Thekeybenefittousingawordprocessoristhatyoucanmakechangeseasily, includingcorrectingspelling;adding,deleting,formatting,andrelocatingtext;andinserting images. Once you create a document, you can effortlessly print it (as many copies as you want!), save it for later modifications, or send it to a friend via e-mail. Microsoft Word is a very powerful word processor—This handout was created using just a small number of its features! Microsoft Word is available on both PCs and Macs, so what you learn in class today should be applicable to any computer you use. The program may look slightly differentdependingontheversionandcomputerthatyou'reusing,butMicrosoft→ordwill function in the same basic ways. There are other word processors out there, including OpenOffice.org Writer, WordPerfect, Apple Pages, and WordPad. They have manyfeatures in common with MicrosoftWord, and you should feel free to choose any program you prefer.

OpeningMicrosoft Word

To get started with Microsoft →ord(sometimescalled "MS →ord"), you will need to locate and open the program on your computer. To open the program, point to →ord's icon on thedesktopwithyourmouseanddouble-clickonitwiththeleftmousebutton.Ifyoudon't see the MS →ord icon on your desktop, you'll have to access the program from the Start Menu. Click on the button in the bottom left corner to pull up the Start Menu. You should seetheMS→ordiconhere,soclickonitoncewithyourleftbutton.Ifyoustilldon'tseeit, click on "All Programs" and scroll through the list of programs until you find it. Click once with yourleft button toopen the program.

Occasionally, Microsoft →ord will be in a folder called "Microsoft Office" or something similar—this will make one more step between "All Programs" and "Microsoft →ord."MS Word will then open a blank page called "Document 1."This is an image of the upper-left cornerofMSWord.Thisboxfeaturestwoimportantpiecesofinformation:thenameofthe file that you are currently working on (in this case, "Document 1" since we have not yet renamed it) and which program you are using ("Microsoft →ord").There should now be a blinkinglineinthetop leftcornerof thepartof thescreenthatlookslikeasheetof paper. This means you will be able to type in this space!

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The "Backspace" key deletes words to the LEFT of the cursor, and the "Delete" keydeletes words to the RIGHT of the cursor.

MicrosoftWordFeatures

The Title Bar

Thisisaclose-upviewoftheTitleBar,wherefileinformationislocated.Itshowsthename ofthefile(here,"Microsoft→ord")andthenameoftheprogram("Microsoft→ord").Notice the threebuttonsonthe right side, controllingthe size and closingoftheprogram.

Minimize: Left click this button to shrink the window down to a small button that will appear in the task bar

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Close:Left-clickthisbuttontoclosethewindow.Theprogramwillcloseandstoprunning. Make sure you save your work first!

RestoreDown: Left-clickthisbuttontomakethewindowsmallerwithoutminimizingit.

The FileMenu

In Microsoft Office 2007, there was something called the Microsoft Office Button ( ) in the top left-hand corner. In Microsoft Office 2010, this has been replaced with a tab in the Ribboncalled"File."→henyouleft-clickonthistab,adrop-downmenuappears.Fromthis menu, you can perform the same functions as were found under the Microsoft Office Button menu, such as: Create a new document, open existing files, save files in a variety of ways, and print.

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The Ruler

The ruler isfound belowthe Ribbon. The ruler tells you where you are on the page, along with the dimensions of the overall document. Just like a real piece of paper, the default settingis8.5x11inches,andthemarginshavebeenincorporatedforyou.Similartomost options in MS Word, this is entirely customizable and the user can create a document of any dimensions.

Keyboard Review

In order touse MSWord effectively, you must input commands usingboth themouse and the keyboard. The above image of a keyboard should look similar to the keyboard in front ofyou;learningjustafewcertainkeyswillhelptoimproveyourefficiencyintyping,aswell as present you with more options within the program. The following is a list of commonly used keys that have special functions in MS Word (key functions can change dependingon which program you are using)

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5. Tab:Thiskeywillindentwhatyoutype,ormovethetexttotheright.Thedefaultindent distance is usually ½ inch. 6. Caps Lock: Pressing this key will make every letter you type capitalized.

7. Control(Ctrl):Thiskey,whenpressedWITHanotherkey,performsashortcut.

8. Enter:Thiskeyeithergivesyou a newline, orexecutesa command(pressed inMS Word, it begins a new line).

9. NumberKeypad:Theseareexactlythesameasthenumbersatthetopofthe keyboard; some people just find them easier to use in this position.

10. ArrowKeys:Likethemouse,thesekeysareusedtonavigatethroughadocumentor page.

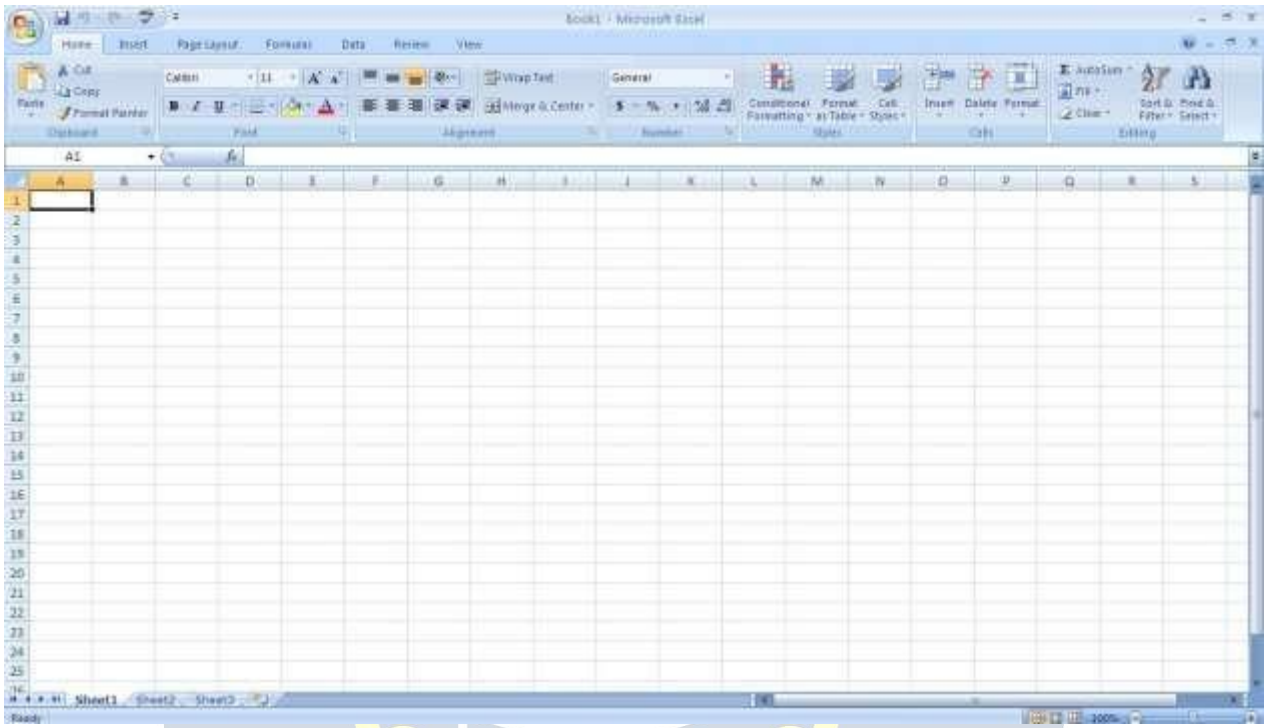
MICROSOFTEXCEL

Microsoft Excel is an example of a program called a "spreadsheet." Spreadsheets areused to organize real world data, such as a check register or a rolodex. Data can be numerical or alphanumeric (involving letters or numbers). The key benefit to using a spreadsheet programisthatyou canmake changeseasily, includingcorrectingspellingor values, adding, deleting, formatting, and relocating data. You can also program the spreadsheettoperformcertainfunctionsautomatically(suchasadditionandsubtraction), and a spreadsheet can hold almost limitless amounts of data—a whole filing cabinet's worth of information can be included in a single spreadsheet. Once you create a spreadsheet, you can effortlesslyprint it (asmany copies as you want!), save it for later modifications, or send it to a colleague via e-mail. Microsoft Excel is a verypowerful.

OpeningMicrosoftExcel

To get started with MicrosoftExcel (often called "Excel"), you will need to locate andopen the program on your computer.To open theprogram, point to Excel's icon on the desktop with your mouse and double-click on it with the left mouse button. If you don't see the Excel icon on your desktop, you'll have to access the program from the Start Menu. Click on the button in the bottom left corner to pull up the Start Menu. You may see the Excel icon here, so click on it once with your left button. If you still don't see it, click on "All Programs"andscrollthroughthelistofprogramsuntilyoufindit.Itmayalsobelocatedin a folder called "Microsoft Office" or something similar—it will depend on your specific machine.Clickoncewithyourleftbuttontoopentheprogram.Excelwillthenopenablank page called "Book1."

MicrosoftExcelFeatures



The Title Bar

Thisisaclose-upviewoftheTitleBar,wherefileinformationislocated.Itshowsthename ofthefile(here,"Book1,"thedefaulttitle)andthenameoftheprogram("MicrosoftExcel"). You willbe abletoname yourfile somethingnewthefirst timethatyou save it.Noticethe three buttons on the right side of the Title Bar, controlling the size and closing of the program.

TheRibbon Menu System

The tabbed Ribbon menu system is how you navigate through Excel and access various Excelcommands.IfyouhaveusedpreviousversionsofExcel,theRibbonsystem replaces the traditional menus. At the bottom, left area of the spreadsheet, you will find worksheet tabs. By default, three worksheet tabs appear each time you create a new workbook. On the bottom, right area of the spreadsheet you will find page view commands, the zoom tool, and the horizontal scrolling bar.

The FileMenu

In Microsoft Office 2007, there was something called the Microsoft Office Button ( ) in the top left-hand corner. In Microsoft Office 2010, this has been replaced with a tab in the Ribbon called "File."→hen you left-click on this tab,a drop-down menuappears. From this menu, you can perform the same functions as were found under the Microsoft Office Button menu, such as: Create a new worksheet, open existing files, save files in a variety of ways, and print.6

Quick Access Toolbar On the top left-hand side of the Title Bar, you will see several little icons above the File menu. These let you perform common tasks, such as saving and undoing,withouthavingtofindtheminamenu.→e'llgooverthemeaningsoftheiconsa little later.

TheHomeTab

ThemostcommonlyusedcommandsinExcelarealsothemostaccessible.Someof these commands available in the Home Tab are: The Home Tab Toolbar offers optionsthat can change the font, size, color, alignment, organization and style of the text in the spreadsheet and individual cells. For example, the "Calibri" indicates the FONT of your text, the "11" indicates the SI↕E of your text; etc. →e will go over how to use all of these options to format your text in a little while. Each of these options expands into a menu if you left-click on the tiny down-arrow in the bottom right corner of the window. This tab works the exact same way as the MS Word Formatting Toolbar. The main difference isthat the format changes will only affect the selected cell or cells, all unselected cells remaininthedefaultsetting("Calibri"font,size"11").

Equation Editor

The Equation Editor is generally found below the ribbon menu. The left side denotes whichcellisselected("C5")andtherightsideallowsyoutoinputequationsortextinto the selected cell.

Therearetwo waystoinputinformationintoa cell.Youmayeitherselectanindividualcell and type the equation or text into the equation editor or type the equation or text directly into the selected cell.Equations (forexample, =SUM(D5+E5)) will automaticallybe hidden insidethecellandcanonlybe viewedusing theequationeditor;theresultof theequation willdisplayinthecell.Ifanywrittentextislongerthanthecellwidth,thenthespreadsheet will cover up anyportion longer than the cellwidth. The information will still be in the cell, you just won't be able to see it at all times.

Keyboard Review

In orderto use Exceleffectively, you must input commands usingboth the mouse and the keyboard. The above image of a keyboard should look similar to the keyboard in front of you;learningjustafewcertainkeyswillhelptoimproveyourefficiencyintypingaswellas presentyouwithmoreoptionswithintheprogram.Thefollowingisalistofcommonlyused keys that you may already be familiar with:

1. Backspace:Thiskeydeletesletters backwards.
2. Delete:Thiskeydeleteslettersforward.
3. Shift:Thiskey,whenpressedWITHanotherkey,willperformasecondaryfunction.
4. Spacebar:Thiskeyentersaspacebetween wordsorletters.
5. Tab:Thiskeywillindentwhatyoutype,ormovethetexttotheright.Thedefaultindent distance is usually ½ inch.
6. CapsLock:Pressingthiskeywillmakeeveryletteryoutypecapitalized.
7. Control(Ctrl):Thiskey,whenpressedWITHanotherkey,performsashortcut.
8. Enter:Thiskeyeithergivesyouanewline,orexecutesacommand.
9. NumberKeypad:Theseareexactlythesameasthenumbersatthetopofthe keyboard; some people just find them easier to use in this position.
10. ArrowKeys:Likethemouse,thesekeysareusedtonavigatethroughadocumentor page.

Pointer Shapes

As with other Microsoft programs, the pointer often changes its shape as you work in Excel.Eachpointershapeindicatesadifferentmodeofoperation.Thistableshowsthe various pointer shapes you may see while working in Excel.

MICROSOFTEXCEL BASICS

Formatting Cells

Cells are the small rectangular boxes that make up the spreadsheet. All the information entered into an Excel spreadsheet is entered into cells. The cell width and height will usuallyneed to be adjusted to viewall the information entered into a cell.

To adjust the cell width, move the mouse pointer in between two cell columns in the column header. Hold down the left mouse button and drag the mouse left to shorten the widthorrighttoexpandthe width.Noticethatallcellswithinthecolumnareautomatically adjusted. Adjust the cell height using the same method. Move the mouse cursor between tworows,holddowntheleftmousebuttonandmovethemouseuptodecreasetheheight and down to increase the height. Before you begin entering data into a spreadsheet, you may already know the width and height you want your cells to have. In this case, you can adjust all the widths and heights by doing the following: Select the "square" between Column A and Row 1.

ThiswillselectALLthecellsinthespreadsheet.Fromthe"Home"tabof theRibbonMenu, withinthe"Cells"box, clickon"Format,"andselectRowHeight.↔ouwillnowbeaskedto enter a numerical value for height. The default value is 15, but you can enter your own height value (10, 20, 25, etc.).

RepeatthesamestepsforColumnwidth.Fromthe"Home"tabottheRibbonMenu,within the"Cells"box,clickon"Format,"andselectColumnWidth.Notethatthedefaultvaluefor thewidthis8.43.Enteryourown widthvalue(5,10,15,20,etc.).

For any given cell or selected cells, you can also format the way your data is represented within the cell(s). Select a single cell or multiple cells.
Again, from the "Home" tab of the Ribbon Menu, within the "Cells" box, click on Format." Select "Format Cells."The format window will now appear, giving you a wide variety of options on how to format your cell.

Number –Thisallowsyoutochoosehowtorepresentthenumbersthatareenteredintoa cell (number, currency, time, etc.).
Alignment–Thisdeterminesshowthedatawillbealignedwithinthecell(left-side, centered, or right-side).
Font–Selectthetypeoffonttobeusedwithinthecells.
Border– This option lets you choose what type of border, if any, you would like around the cells or some of the cells.
Fill –Thisallowsyoutochangethebackgroundcolorofthecell.
Protection– This option allows you to "lock" cell information so that other users cannot make changes.

TypinginCells

Clickonacellto begintyping init.Itisthateasy!Whenyouarefinishedtypinginthecell, presstheEnterkeyandyouwillbetakentothenextcelldown.Youcanthenbegintyping in that cell. You can easily navigate around the cells using your arrow keys. Keep in mind thattheFormattingtoolbarinMicrosoftExcel2010isexactlythesameastheoneusedfor Microsoft Word 2010. The biggest difference between the two programs is that, in Excel, the format is set for each individual cell.

So if you change the font and applied the bold option in cell C5, then this format will only be applied to cell C5. All remaining cells will remain in default mode until they have been changed. Sometimes you may only wish to adjust the format of one particular cell. In this case, simply select the cell by clicking the mouse on it and make any necessary adjustmentstothefont,size,style,andalignment.Thosechangeswillnotcarryoverwhen you begin typing in a new cell. Other times, you may wish to adjust the text format of a group of cells, entire rows, or entire columns.

In Excel, you can choose groups of cells in rectangular units—all the cells you select must form a rectangle of some kind. To select a group of cells, begin by clicking on the cell that would be in the upper-left hand corner of your rectangle. Hold down the Shift key on your keyboard and use the arrows (>, <,‡, $) on the keyboard to expand the selection of cells, or click and drag your mouse. Once the group of cells has been selected, you can make adjustments to the font, size, style, and alignment and they will be applied to all selected cells.

To select an entire row, click on the Row Number with your mouse—note how the entire row becomes highlighted. All formatting changes will now be applied to the whole row. To select an entire column, click on the Column Number with your mouse—again, the entire column will become highlighted. All formatting changes will be applied to the whole column.

InsertingRowsand Columns.

When you are working on a spreadsheet, you may realize that you left out a row or column of data and need to add it in. To insert a row, click on the row below where you wantyournewrowtobe(remembertoclickontherownumbertohighlighttheentirerow). Fromthe"Home"tab,withinthe"Cells"box,click"Insert."Select

"Insert Sheet Rows." A new row will automatically be inserted and the row numbers automatically adjusted. To insert a column, click on the column to the right of where you wantyournewcolumntobe(remembertoclickonthecolumnlettertohighlighttheentire column). From the "Home" tab, within the "Cells" box, click "Insert." Select "Insert sheet Columns." A new column will automatically be inserted and the column letters automatically adjusted.

SortingData

Once you have created your spreadsheet and entered in some data, you may want to organize the data in a certain way. This could be alphabetically, numerically, or another way.Let'slookatthefollowingspreadsheetasan example.Thisinformationcanbesorted by check number, date, alphabetically by description, or using any of the other columns.

First, select all the cells that represent the data to be sorted, including the header descriptions (Check No., Date, Description, etc.). Then, select the first cell in Row 1(Check No.) Click and drag to select all the cells that you want to sort. Using the mouse, select Sort & Filter from the Editing panel. Select Custom Sort…

Select the column you wish to sort by. Do you want to sort by alphabetical order, reverse alphabetical order, date, or amount? →hen you press "OK," your spreadsheet will be sorted in the order that you specified.

AutoSumandExcelEquations

Oneof themostpowerfulfeaturesofExcelis itsabilityto performbasicmathfunctionson data. Excel can add, subtract, multiply, divide, find the average, and perform general counting functions on the numerical data that you enter. To enable this feature, highlight all of the cells in a column,plus one additional emptycell in which to displaytheresult.

SelecttheAutoSumiconfromtheribbonmenu:

If you click directly on the ∑, Excel will automatically add up the numbers you have selected.Ifyouclickonthelittledropdownarrownexttoit (▼),youwillgetthefullchoice ofmathematicalfunctions.Ifyoudouble-clickonthecellinwhichtheanswerappears,you will see an equation that looks something like this (you will also see this equation in the Equation Editor):

Let'sbreakdownwhatexactlytheequationmeans:

=indicatesthatyouarestartinganequationinthiscell.

SUMtellsthefunctiontobeperformed.Inthiscase,allthecellswillbeaddedtogether.

( )Theparentheses containthecells that thefunction will be performed on.

D2Thisisthefirstcelltobeincludedintheadditionformula.

D8Thisisthelastcelltobeincludedintheadditionformulaindicatesthatallcells between the first and the last should be included in theformula.

Thespreadsheetwilloften"select"thecellsthatitthinksyouwishtoinclude.Butyou can manually change the cell range by typing into the Equation Editor. When you are readytoexecutetheformula,justpressthe"Enter"key.Othermathematicalfunctionsyou can perform from the AutoSum button include:

Average – This function will calculate the average of the selected cells.

CountNumbers–Thisfunctionsimplycountsthenumberof cellsselected. **Max** –

This function will return the highest value of the selected cells.

Min–Thisfunctionwillreturnthelowestvalueoftheselectedcells.

Remember Excel equations are similar to programming languages, so have some patience and if at first you don't succeed, try again. Even Excel professionals create incorrect formulas on their first try.

Onceyougetanequationtowork,youwilltechnicallybeacomputerprogrammer!

Creating Charts andGraphs:

InExcel,therearealsowaystorepresentyourdatainchartorgraphicalforms.

Tocreateachartorgraph,selecttheInserttabfromtheRibbonMenubar.Inthemiddle of this new menu, you will see a "Charts" box.

1. Select the range of data to be represented in the chart or graph. Click on your spreadsheet and select the data to be represented using the same method that you used to select data in the sorting exercise. For this example, we want to see a visual comparisonofhowmuchmoneywespentoneachiteminthelist.Selectrows1through8 in rows B, C, and D.
2. Selectthetypeofchartorgraphyouwishtocreate(forourexample,we'llchooseabar graph).
3. Once you have created your graph, you can now "customize" it by giving it a title and labeling different parts. You can also make certain design decisions regarding the appearance of your graph or chart by choosing the different elements under the Design tab that appears on the Ribbon Menu bar.
4. Finally, you will need to decide if your chart should be pasted on to the existing spreadsheetorifitshouldbepastedontoabrandnewsheet.Ontheveryrightsideof the

Ribbon Menu bar, select Move Chart. Once the chart or graph has been created and you realize a mistake has been made or it did not turn out the way you wanted it to, simply click on the chart or graph and hit the Backspace key on your keyboard to delete it from your spreadsheet. Don't be afraid to go back and tryagain!

Multiple Sheets

Sometimes you may find it useful to have multiple spreadsheets for related data. For example, personal finances are usually tracked on a monthly calendar and it's generally goodideatokeeprecordsofthepasttransactions.Excelcancreatemultiple spreadsheets attached to the same Excel file, one for each month. Tabs for the different sheets are located in the lower-left corner of the spreadsheet. The spreadsheet that is currently being worked on is on the top tab. To access another spreadsheet, select the appropriate tab, such as Sheet 2. The default names for the sheets are usually Sheet1, Sheet2, and Sheet3.To rename a sheet or to create a new sheet, simply move the mouse pointer over the sheet name and right-click. Select "Rename" to rename the sheet or select "Insert" to create a new sheet.

You can transfer cell information between two or more sheets by creating a simple formula. For example, most people who keep track of their personal finances don't begin every month with a balance of $0. Instead, the balance at the beginning of the month is transferred over from the previous month. So if you have a March 2012 finance spreadsheet and an April 2012 finance spreadsheet, you can select a cell in the April 2012 sheet and write in the formula

='March2012'!D11

The equalssign (=)tellsExcel that the value forthiscellisto be derived from somewhere in the spreadsheet (such as a formula or another cell location).
'Sheet name' tells Excel what sheet to refer to when it retrieves the value. The single quotation marks (' ') are important. ! D11 tells Excel that it is to copy the value that is located in cell D11 (or whatever cells you wish to copy the value from).
Ifyouwanttotransfercellinformationfromonecelltoanotheronthesamesheet,youcan use the exact same formula; just exclude 'Sheet name.'

DOINGMOREWITHMICROSOFTEXCEL

Cutting,Copying,andPastingData

Whenyou are typingin yourspreadsheet, itcan be veryhelpful tocut orcopyinformation from one cell and paste it into another. This can help reduce the amount of typing you have to do, as well as limit the number of typographical errors. Cutting, copying, and pasting the contents of cells in Excel is very similar to the way you do itin
MicrosoftWord.
ThesecommandsareallaccessiblefromtheHometab ontheRibbonMenubar.
To CUT the contentsof a cell, click on the cellto select it, then click on the Cut button on the Home tab. ↔ou will see the border of the cell turn into little "marching ants." The contents are now on the Clipboard, ready for you to paste them somewhere else.

To PASTE the cut selection somewhere else, click on the cell where you want the selection to go. Then click on the Paste button on the Home tab. The selection will now appear in the new cell and be removed from the original cell.

To COPY the contents of a cell, simply follow the directions above but replace the CUT command with COPY. This will leave the contents of the original cell in place andmake an exact copy of them in another cell.

FillingDataacrossColumnsand Rows

Another way to copy text from one cell to another is to drag it or "fill" it across a range of cells (a row or a column). This is a great method if you want all the text (or numbers) in column or row to be the same. For example, if you have a spreadsheet for your yearly budget with a column for rent, you could use this method to fill in all the cells in the rent column with the same number without re-typing.

Tofillthecontentsofcellsinacolumn:

1. Clickonthecellwiththeinformationyouwanttocopytotheothercells.
2. Hoveryourmouseoverthelittlesquare(calleda"fillhandle")inthebottomrightcorner of the highlighted cell border. Your mouse will turn into a cross.
3. Click on the fill handle and drag your mouse (while still holding the button down) down thecolumnuntilyou'vehighlightedallthecellswhereyouwantthetexttogo.
4. Letgoofthemousebutton.Thetextwillnowappearinallthecellsyouhighlighted.
5. Youcanfollowthesesamestepstofillthecontentsofarowratherthanacolumn— simply drag your mouse across the row instead of down the column.

You canalso use this technique to copyformulas across columnsand rows in the spreadsheet.

CLOSINGMICROSOFTEXCEL

SavingSpreadsheets

When you finish your spreadsheet and want to leave the computer, it is important to save your work, even if you are printing a hard copy. To save your work in Excel, it is essential to know WHAT you are trying to save and WHERE you are trying to save it.

Click on the File Tab, then click **"Save As"** to get started. You can change the filename thatExcelhaschosenjustbytypinganewoneinthe"Filename"boxat thebottomofthe window that appears. The My Documents folder on your computer's hard drive is a good placeto storeyour documents.AblankCD ora USB jumpdrive aregreat portablestorage options and can contain a LOT of data. Excel will automatically save your document with the suffix ".xlsx"–this is simply a tag that lets Excel know that your work is specific to this program and what version it is in. You do not have to type it–just highlight what is there (default is "Book1") and write a new file name. ↔ou may also chose to save it in an older format so that it can be opened with older versions of Excel. After the first save, you can just click "Save" to preserve your work.

However,itisimportant tonotethat everyfollowingcommandof SAVE willoverwrite your originalfile,creatingthemostup-to-dateversion.Ifyouwouldliketokeepsavingdifferent versions of your worksheet, be sure to use the "Save As" function each time you save, using a slightly different name for each version.

Printing Spreadsheets

To print your Excel document, click on the File Tab, then click "Print" from the left-side column. A Print Preview and printing options will appear in your Excel window.

Click the large "Print" button to send your worksheet to the printer. ↔ou can change the number of copies you would like to print, change the paper orientation, choose which printer you want to use, and more.

Finding More Help

You can get help with Excel by clicking on the Question Mark symbol in the upper-right handcornerofthemainmenubarorbypressingthe"F1"button.Thiswilltakeyoutohelp from Office.com, Microsoft's help website. There are also many other resources and tutorials available online. ↔ou might try a Google search with the words "Excel 2010" and thefunction you are trying to perform. Ask your instructorfor helpfindingthese resources if you have any trouble.

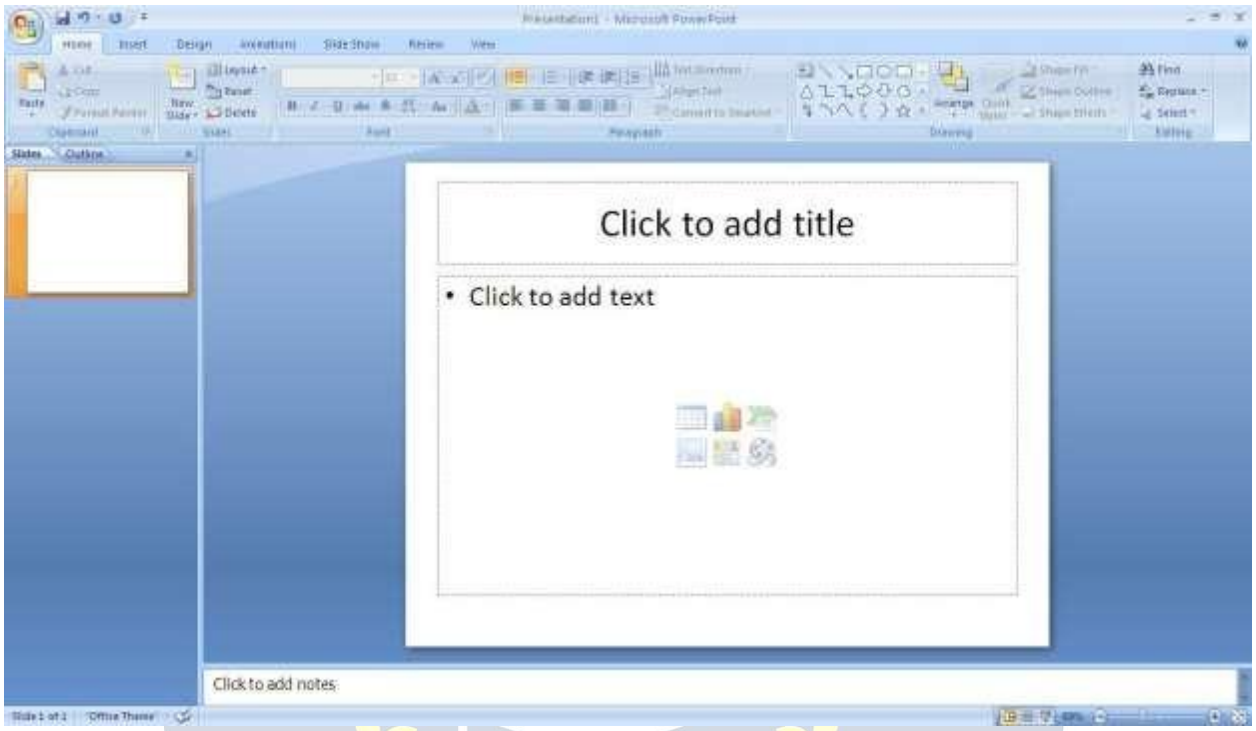
Closing the Program

ClickontheFileTab,thenclick"Exit." OR
ClickontheXinthetoprightcorneroftheExcelscreen.

MICROSOFTPOWERPOINT

Microsoft PowerPoint is a professional presentation program that allows the user to create "presentation slides" that can be displayed on the computer screen or through a projector that is plugged in to the computer. A PowerPoint presentation is a good way to convey pieces of information, usually in the form of an outline, to a large audience. Generally, PowerPoint presentations are appealing to users because they are easy to create and edit and generally small enough to fit onto a CD or a USB Jump Drive. Therefore, a user does not have to carry around any slides or a slide project, and, if necessary, can make last-minute changes to the presentation.

MicrosoftPowerPointComponents:



BeforeyougetstartedwithMicrosoftPowerPoint(commonlyreferredtoasPowerPoint), youwillneedtolocateandopenitonthecomputer.Itmaybeonyourdesktop.
Onthecomputerdesktop:
1. Double-clickontheMSPowerPointicon
IftheMSPowerPointiconisnotonthedesktop,gototheStartmenu:
1. Click ►Start►Programs►MicrosoftPowerPoint*
MSPowerPointwillopenablankpagecalled"Presentation1."

TheTitleBar

Thisisaclose-upviewoftheTitleBar,wherefileinformationislocated.Noticethedefault title"Presentation1."Youwillgetachancetorenameyourpresentationslidesthefirsttime you choose to save it.

TheMenu Bar

The Menu Bar is a common sight in almost all Microsoft Windows programs. It features text based menus, on which virtually every option available to the user in the entire program is listed.
Each menu expands when clicked (with the left mouse button), offering many options categorized by specific tasks.

Standard Toolbar

Toolbars provide "shortcuts" to commands also found in the Menu Bar. Toolbars are usually located just below the Menu Bar and exist to offer another way to perform the same task.
The most commonly used commands in MS PowerPoint are also the most accessible.Some of these commands are:
New|Open|Save |Print|Preview| Spell-check|Copy| Paste|Undo| Insert

Formatting Toolbar

The Formatting Toolbar offers options that can change the font, size, color, alignment, organization, and style of the text in the presentation slides. For example, (starting from the left side of the Toolbar) the "Arial" indicates the FONT of your text; the "32" indicates the SIZE of your text; and so on. This toolbar works the exact same way as the MS Word FormattingToolbar.Themaindifferenceisthattheformatchangeswillonlyaffectthetext box in which you are currently working.

All other text boxes will remain in the default setting ("Arial" font, size "32"). Design/New Slide Icons additional shortcut icons appear on the MS PowerPoint toolbar: the Designicon and the New Slide icon. Both commands are frequently used, and it is good to be familiar with their location on the toolbar.

The Design icon is a shortcut to the slide design page. Here you will be able to create and edit the appearance of your slide(s). The New Slide icon automatically adds a new, blank slide for you to work on. You can keep track of the slides you have already worked on in the Slide Outline box on the left-hand side of the screen. You can access a slide at any time by clicking on it with your mouse through this screen.

SIMPLETASKSINMICROSOFTPOWERPOINT

Text Boxes:

Text Boxes are "designated" areas that allow you to type words, sentences, and bullet points into the slide. You can adjust the size and placement of the text box within any given slide. It is also possible to have multiple text boxes perslide.

When you first open MS PowerPoint, there will automatically be two text boxes on the slide:

"Click to add title" and "Click to add subtitle." These text boxes already have a preset formatappliedtothem.The"title"boxhasafontsizeof"44"whilethe"subtitle"boxhasa font size of "32." You can change the text format of any box at anytime by adjusting the format settings on the Formatting Toolbar. To adjust the size of the text box, first click on thetextbox.Noticethechangeinborder.Onceyouhaveclickedonatextbox,theborder of the box becomes thicker and little circles appear on the corners and at the midpointsof the box. Move the mouse pointer over any one of the circles. Notice that the mouse pointer will change to either — or ‡. Click and hold down the left mouse button. To adjust theheight,movethemouseupordown;toadjustthewidth,movethemouseleftorright. Note that the corner circles can adjust both height and width, while the mid-point circles can only adjust either height or width.

To move the text box to a different location on the slide, move your mouse pointer over anypartofthethick,grayboxoutline.Noticethechangeinyourmousepointer(itwilllook something like a "plus" sign (+) with arrows). Click and hold down the left button on your mouse. You can now drag the text box to any position on the slide by simply moving your mouse. To write in a text box, simplyclick inside the box with your mouse.When a cursor is flashing, you are ready to type.

Slide Design:

One of the more popular features of MS PowerPoint is that it gives the use a wide variety of design choices. At some point, you may wish to change the design and color ofthe

background of your slides. To do so, simply click on the Design icon. On the right-hand side of your screen, the "Slide Design" pane will appear. Here, you are given three design options to apply to your slides.

Design Templates: Here is a list of over 20 templates that you can choose from to apply to the background of your slides. For each template, you have the option of applying the design to all slides or to only the selected slide. You can view these options by clicking on the arrow on the right side of the template. If you are connected to the Internet, you can also choose to view hundreds of additional templates by choosing "Design Templates on Microsoft Office Online" on the bottom of the template screen.

Color Schemes:Thisoptiongives youavarietyofcolorschemestochoosefromtoapply to your selected design template.

Animation Schemes:Thisoption willallowyou to select differenttypes of animationthat can be applied to either all the slides or selected slides. The animation schemes are different ways the slides are "introduced" to your audience, such as "faded wipe" or "pinwheel."

Designingyour ownbackground:

Sometimesyoumaywishtodesignyourownbackground.

To do this, select Format ► Background…from the Menu Bar. Select the Color Bar on the bottom of the Background window and choose the appropriate color and or/effects that you desire. There is no right or wrong way to design your own background, so if you choose this option, have some patience and don't be afraid toexperiment.

Slide Layout:

The default in PowerPoint foreach newslide is to have a Title textboxand a Text box. As discussedearlier,youdohavetheoptionofrearrangingthetextboxestofitanylayoutyou have in mind. However, sometimes it will be easier simply to select a layout that fits your needs rather than reformatting the default layout for each slide. To choose a slide layout, select Format ► Slide Layout from the Menu Bar. On the right-hand side of your screen, the "Slide Layout" pane will appear. From here, you have the option of applying a slide layout either toa selected slide or to anewslide thathas yet to be inserted. You can view theseoptionsbyclickingon thearrowon theright side of thetemplate.

Notethefourdifferenttypesoflayout categories.

Text Layout: These options are for choosing a layout in which you are only organizing different text boxes. There is no room for pictures, charts, or graphs.

Content Layout: These options are for choosing a layout that will only contain pictures, charts, or graphs. There is no room for text boxes.

Text and Content Layout: These options have room for both text boxes and pictures, charts, or graphs.

Other Layouts: Theselayoutsaredesignedforothermediacontentsuchasvideoclipsor audio tracks.

Inserting a Picture:

InsertingapictureintoMSPowerPointisverysimilartoinsertingapictureintoMSWord.

1. Selecttheslidethatyouwishtoaddapictureto.

2. FromtheMenuBar,selectInsert►Picture►From File(orClipArt).

3. Choosethepictureyouwishtoinsertandselect"Insert."

***Note*:** The picture will be inserted in its original size, so you will probably have to re-size it.Youcanre-sizeapicturethesamewayyoure-sizedatextbox. Clickonthepictureand note the circles at the corners and at the midpoints of the length and width. Move your mouse pointer over the circles, left-click the mouse and hold the button down. Move the mouse vertically or horizontally to re-size.

Rotating a picture: It is possible to rotate pictures in MS PowerPoint. Once a picture has beeninsertedontoaslideandyouhaveclickedonthepicturesoitis"outlined,"noticethe green circle above the center of the picture.

Move the mouse pointer over the green circle, and left-click and hold the button down. Now move the mouse either clockwise or counter-clockwise and the picture will rotate in the same direction.

Inserting aGraph or Table:

TherearetwowaystoinsertagraphortableintoaPowerPointslide.

1. Thegraphortablemayalreadyexistinanotherdocumentorfile.Ifthisisthecase,then you can simply insert the graph or table as you would a picture. Follow the instructions under

Inserting a Picture.

Or you could Cut and Paste a graph or chart from another document or file into your slide presentation.

2. MS PowerPoint can create graphs or tables directly in the slide. From the Menu Bar, select

Insert►Chart(orTable).

FortheChartoption,PowerPointwillpresentaverysimplebargraph.

You will need to go in and edit the information in the bar graph to conform to the information you wish to represent in a chart. From the Datasheet, you can enter in the appropriate values for the columns and re-name the entities.

TheTableoptionwillpresentyouwiththefollowingwindow:

Select the appropriate number of rows and columns you wish to have in your table. Click **"OK"**to insert the table. Once the table has been inserted you will be able to put information into the table cells.

Slide Management:

Once you have completed a slide, you can create a new slide by clicking on the New Slide icon. Notice that your previous slides still appear on the left-side frame. You can still access your previous slides by simply clicking on them from this location.

Once all your slides have been completed, you can present your slides in a "slideshow." From the Menu Bar select Slide Show► ↑iew Show. Notice that the slide takes over our entire screen. To navigate through the slides, use the arrow

keysonyourkeyboard(›, <or‡,$).↔oucanalsonavigatethroughyourslidesby clicking on the left or right arrows in the lower left corner of your slide. To end your slide show, click on the square box on the lower left side of your slide show (this is difficult to see at first because it is designed to blend into you slide show so it won't be noticeable to youraudience).SelectEnd Show fromthe pop-upwindow.

CLOSINGMICROSOFT POWERPOINT

SavingSlideShows:

Whenyoucometoastoppingpointandwanttoleavethecomputer,itisimportanttosave yourwork(evenifyouareprintingahardcopy —savingshouldbeareflex).Tosaveyour work in MS PowerPoint, it is essential to know WHAT you are trying to save as well as WHERE you are trying to save it.

Click►File►Save fromtheMenu Bartogetstarted.

You can change the filename that PowerPoint has chosen just by typing a new one in the File name box at the bottom of the window that appears.

MSPowerPointwillautomaticallysaveyourdocumentwith the suffix".ppt" – thisissimply atagthatletsPowerPointknowthatyourworkisspecifictothisprogram.Youdonothave to type it – just highlight what is there (default is "Presentation1") and write a new file name.

The My Documents folder on your computer's hard drive is a good place to store your documents. A blank CD (compact disc) or a USB Jump Drive are great portable storage devices and can contain a LOT of data. It is important to note that every consequent command of SAVE will overwrite your original file, creatingthemostup-to-date version.If

you want to save any changes to your PowerPoint slides without destroying the original one:

In the Menu Bar,click ►File►Save Asfromthe menu barand give your documenta new filename (unique from the original). To bring a saved document back up on the screen from MS PowerPoint:

Click►File►OpenfromtheMenuBar.Locatewherethefileislocated(whichfolder,that is) and click on the filename of the document you want.

Click ►Open.

PrintingSlides:

Toprint your MS PowerPointslides:

Click►File►PrintfromtheMenuBarandaPrintwindowwillpopuponthescreen. Click ►OK

for your document to start printing.

As with all commands in MS PowerPoint, you can make changes along the way. From the Print menu, you can alter how many copies will be made, in what order the pages will be, andmuchmore.OtherusefultoolsarethePrintPreviewfunctionfoundalongsidethePrint command and the

PageSetupfunction.PrintPreviewwillallowyoutolookoveranexactcopyofwhatwill come out of the printer before actuallyexecuting the print command.

Closing the Program:

Whenyouarefinished,

Click►File►Exitfromthemenubar OR

ClickontheXinthetoprightcornerofthecomputerscreen.

IntroductionToInternet:

The internet in simple terms is a network of the interlinked computer networking worldwide, which is accessible to the general public. These interconnected computersworkbytransmittingdatathroughaspecialtypeofpacketswitchingwhichisknownasth e IP or the internet protocol.

Internet is such a huge network of several different interlinked networks relating to the business, government, academic, and even smaller domestic networks, therefore internet is known as the network of all the other networks. These networks enable the internet to be used for various important functions which include the several means of communications like the file transfer, the online chat and even the sharing of the documents and web sites on the WWW, or the World WideWeb.

It is always mistaken said that the internet and the World Wide Web are both the same terms, or are synonymous. Actually there is a very significant difference between the two whichhastobecleartounderstandboththeterms.TheinternetandWorldWide Web are boththenetworksyet;theinternetisthenetworkoftheseveraldifferentcomputerswhich areconnectedthroughthelinkageof theaccessorieslikethecopper wires,thefiberoptics and even the latest wireless connections. However, the World Wide Web consists of the interlinkedcollectionoftheinformationanddocumentswhicharetakenastheresourceby the general public. These are then linked by the website URLs and the hyperlinks. Therefore World Wide Web is one of the services offered by the whole complicated and huge network of the internet. The use of IP in the Internet is the integral part of the network, as theyprovide the services of the internet, through different layers organization through the IP data packets. There are other protocols that are the sub-classes of the IP itself, like the TCP, and the HTTP.

Bytheturnofthecentury,information,includingaccesstotheInternet,willbethebasisfor personal, economic, and political advancement. The popular name for the Internet is the information superhighway. Whether you want to find the latest financial news, browse through library catalogs, exchange information with colleagues, or join in a lively political debate, the Internet is the tool that will take you beyond telephones, faxes, and isolated computerstoaburgeoningnetworkedinformationfrontier. The Internet supplements the traditional tools you use to gather information, Data Graphics, News and correspond with other people. Used skillfully, the Internet shrinks the world and brings information, expertise, and knowledge on nearly every subjectimaginable straight to your computer.

WhatistheInternet?

The Internet links are computernetworks all over the world so thatusers can share resources and communicate with each other. Some computers have direct access to all the facilities on the Internet such as the universities. And other computers, example privately-owned ones, have indirect links through a commercial service provider, who offerssomeoralloftheInternetfacilities.InordertobeconnectedtoInternet,youmust go through service suppliers. Many options are offered with monthly rates. Depending on the option chosen, access time may vary. TheInternetiswhatwecallaMetanetwork,thatis,anetworkofnetworksthatspansthe globe. It'simpossible to give an exact countof the numberof networksorusersthat comprise the Internet, but it is easily in the thousands and millions respectively. The Internet employs a set of standardized protocols which allow for the sharing of resources amongdifferentkindsof computersthatcommunicatewitheachotheronthenetwork. These standards, sometimes referred to as the Internet Protocol Suite, are the rules that developers adhere to when creating new functions for the Internet. TheInternetisalsowhatwecalladistributedsystem;therearenocentralarchives.

Technically, no one runs the Internet. Rather, the Internet is made up of thousands of smaller networks. The Internet thrives and develops as its many users find new ways to create,displayandretrievetheinformationthatconstitutestheInternet.

Who OwnstheInternet?

No one actually owns the Internet, and no single person or organization controls the Internetinitsentirety.TheInternetismoreofaconceptthananactualtangibleentity,and it relies on a physical infrastructure that connects networks to othernetworks.

Is WebandInternetthe Same?

The Internet is not synonymous with World WideWeb. The Internet is a massive network of networks, a networking infrastructure. It connects millions of computers together globally, forming a network in which any computer can communicate with any other computer as long as they are both connected to the Internet. The World Wide Web, or simply Web, is a way of accessing information over the medium of the Internet. It is an information-sharingmodelthatisbuiltontopoftheInternet.

WEBBROWSER:

A **web browser** (commonlyreferred to as a **browser**) is a software application for retrieving,presenting,andtraversinginformationresourcesontheWorldWideWeb. Aninformationresourceisidentifiedbya UniformResourceIdentifier(URI/URL)andmay be a web page, image, video or other piece of content. Hyperlinks present in resources enable users easily to navigate their browsers to related resources.

AlthoughbrowsersareprimarilyintendedtousetheWorldWideWeb,theycanalsobe used to access information provided by web servers in private networks or files in filesystems.

Usesof Internet

Internetistodayoneofthemostimportantpartofourdailylife.Therearelargenumbers ofthingsthatcanbedoneusingtheinternetandsoitisveryimportant.Youcansaythat withtheprogressintheinternetweareprogressingineverysphereof lifeas itnotonly makes our tasks easier but also saves a lot of time. Today internet is used for different purposes depending upon the requirement. Here in this very article we have mentioned then ten best uses of the internet. Here goes the list.

1) Email:

By using internet now we can communicate in a fraction of seconds with a person who is sittingintheotherpartoftheworld.Todayforbettercommunication,wecanavailthe facilitiesofEmail.Wecanchatforhourswithourlovedones.Thereareplentymessenger services and emailservices offeringthis serviceforfree.Withhelpof such services, it has become very easy to establish a kind of global friendship where you can share your thoughts, can explore other cultures of different ethnicity.

2) Information:

Thebiggestadvantagethatinternetofferingisinformation.TheinternetandtheWorld WideWeb hasmadeiteasyforanyonetoaccessinformationanditcanbeof anytype,as theinternetisfloodedwithinformation.TheinternetandtheWorldWideWebhasmadeit easyfor anyone to access information and itcan be of anytype. Anykind of information on any topic is available on the Internet.

3) Business:

Worldtradehasseenabigboomwiththehelpoftheinternet,asithasbecomeeasierfor buyers and sellers to communicate and also to advertise their sites. Now a day's most of the people are using online classified sites to buy or sell or advertising their products or services. Classified sites save a lot of money and time so this is chosen as medium by most of people to advertise their products. We have many classified sites on the web like craigslist, Adsglobe.com, Kijiji etc.

4) SocialNetworking:

Today social networking sites have become an important part of the online community. Almostall usersare members use it for personal and businesspurposes. It's anawesome place to networkwith manyentrepreneurswho comeheretobeginbuildingtheirown personal and business brand.

5) Shopping:

Intoday'sbusylifemostofusareinterestedtoshoponline.Nowaday'salmostanything canbeboughtwiththeuseoftheinternet.IncountrieslikeUSmostofconsumersprefer to shop from home. We have many shopping sites on internet like amazon.com, Dealsglobe.com etc. People also use the internet to auction goods. There are many auction sites online, where anything can be sold.

6) Entertainment:

Oninternetwecanfindallformsofentertainmentfrom watchingfilmstoplayinggames online. Almost anyone can find the right kindof entertainmentfor themselves.When peoplesurftheWeb,therearenumerousthingsthatcanbefound.Music,hobbies,news andmorecanbefoundandsharedontheInternet.Therearenumerousgamesthatmay be downloaded from the Internetfor free.

7) E-Commerce:

Ecommerce is the concept used for any type of commercial maneuvering, or business dealsthatinvolvesthetransferofinformationacrosstheglobeviainternet.Ithasbecome a phenomenon associated with any kind of shopping, almost anything. It has got a real amazing and range of products from household needs, technology to entertainment.

8) Services:

Many services are now provided on the internet such as online banking, job seeking, purchasingticketsforyourfavoritemovies,andguidanceservicesonarrayoftopicsinthe every aspect of life, and hotel reservations and bills paying. Often these services are not available off-line and can cost you more.

9) Job Search:

Internetmakeslifeeasyforbothemployersandjobseekersastherearеplentyofjobsites which connect employers and job seekers.

10) Dating/Personals:

Peopleareconnectingwithothersthoughinternetandfindingtheirlifepartners.Internet notonlyhelps tofind the right person butalso to continuetherelationship.

E-mailing

Shortfor**electronic mail**,**e-mail** or**email** istextmessagesthatmaycontainfiles,images, or other attachments sent through a network to a specified individual or group of individuals. The first e-mail was sent by Ray Tomlinson in 1971. By 1996, more electronic mail was being sent than postal mail.

“Email,e-mailorelectronicmailisthetransmissionofmessages(emailsoremail messages) over electronic networks like the internet.”

Email, sometimes written as e-mail, is simply the shortened form of “electronic mail,” a system for receiving, sending, and storing electronic messages. It has gained nearly universalpopularityaroundtheworldwiththespreadoftheInternet.Inmanycases,email has become the preferred method for both personal and business communication.

HowItIsUsed

Messages sent by electronic mail normally reach a recipient’s account within seconds.They frequently include more than just text; images and numerous types of formatted documents are now easily included as attached files. Moreover, it is no longer necessaryto be sitting in front of a PC to send or receive an email. A variety of mobile devices, such as tablet computers and smart phones, make it possible manage correspondence on the go.

Most e-mail systems include a rudimentary text editor for composing messages, but many allowyou to edityourmessagesusinganyeditoryou want. You then sendthemessage to the recipient by specifying the recipient's address. You can also send the same messageto several users at once. This is called **broadcasting.**

Sent messages are stored in electronic mailboxes until the recipient fetches them. To seeif you have anymail, you mayhave to check your electronic mailboxperiodically, although many systems alert you when mail is received. After reading your mail, you can store it in atextfile,forwarditto otherusers,ordeleteit.Copiesofmemoscanbeprintedouton aprinterif youwanta papercopy.E-mailcanbedistributedtolistsof peopleaswellasto individuals. A shared distribution list can be managed by using an e-mail reflector. Some mailinglistsallowyoutosubscribebysendingarequesttothemailinglistadministrator.A mailing list that is administered automatically is called a list server.

To get a grasp of what email is it's best — the terminology indicates it — to think in equivalents of "traditional" postal mail.

- **Theemailmessage** -Insteadofusingapentowritealetteronpaper,you'reusing your keyboard to type an email message in an email program on yourcomputer.
- **Sending the email** - When the email is finished and has been addressed to the recipient'semailaddress,youdon'tputastamponitandpostitbutpressthe Send button in the email program. This makes the email message go on itsjourney.
- **Emailtransport**- Like postalservicestransportlettersandparcel,emailserverstransmit email messages from sender to recipient. Usually, emails are not delivered to the recipient directly, though, but waiting at the "nearest" mail server to be picked up by them.
- **Fetching new mail** - If you've got new mail in your mailbox, you go and fetch it. Similarly, your email program can check for new email messages at your mail serverand download them for you to read.

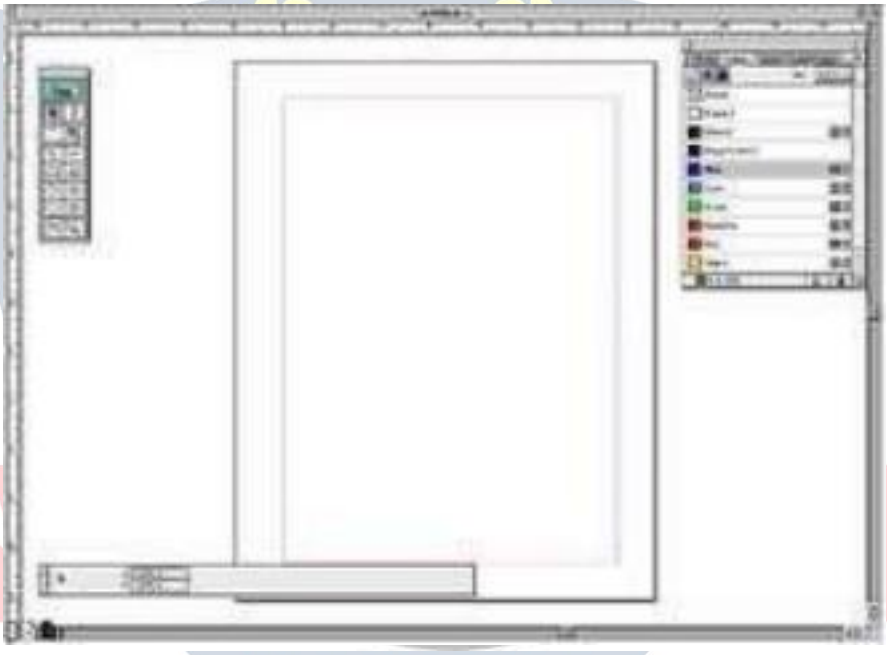
Desktop Publishing

AdobePageMaker

PAGEMAKER:

PageMaker was one of the first desktop publishing programs, introduced in 1985 by AldusCorporation, initially for the then-new Apple Macintosh and in 1987 forPCsrunningWindows1.0.

PageMakerwasawardedanSPAExcellenceinSoftwareAwardforBestNewUseofa Computer in 1986.



PageMaker relies on Adobe Systems'PostScript page descriptionlanguage,andin 1994 Adobe Systems acquired Aldus and PageMaker.

As an application relying on a graphical user interface, PageMaker helped to popularize the Macintosh platform and the Windows environment.

Adobe PageMaker is a desktop publishing software program that allows you to view entirepagesofapublication,suchasareport,pamphletorbooklet.Therefore,it'seasy to format a document's layout and control various design details, such as fonts and graphics, prior to printing or distribution.

Adobe PageMaker provides graphic designers, print professionals or production artists

withtheabilitytocreateprofessionalpagelayouts.Ifyou'repursuingsuchacareer,orif

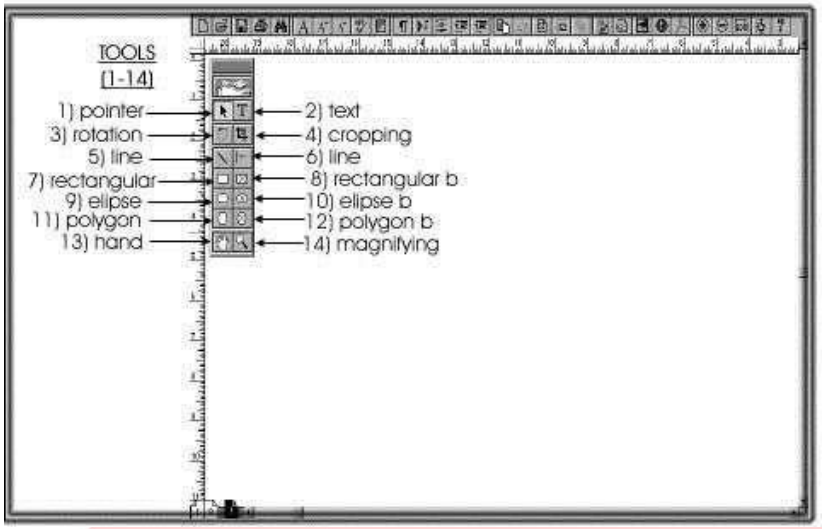
you'reinterestedindesktoppublishingforeducationalorsmallbusinesspurposes,you may want experience with this program.

SystemRequirements

Adobe PageMaker runs on both Windows and Macintosh computers. On Windows machines, it'srecommended thatyour system has 48 MB ormoreof RAM, 200 MBof available hard-disk space and a high-resolution display. If you have a Mac, 45 MB of memory is recommended in addition to the same storage and monitor requirements. Adobe has released updates to ensure the product continues to function with newer computer hardware.

Toolsusedinpagemaker

ThefunctionsoftheToolboxshouldbelearnedinordertomakegooduseofthe PageMaker program.



WhenPageMakerisflashed up, the toolboxshouldbe seen on themonitor.TheToolbar consists of 14 separate boxes.

TextTool

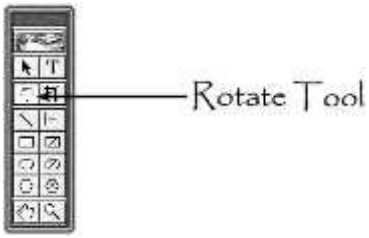
Thetexttool(theletterT)islocatednexttothepointertoolatthetopoftheToolbox..If textistobewritten,theTshouldbeclicked.Thetextboxwilllightenup.Thecursorcanbe placed anywhere and text can be written.

The Pointer Tool

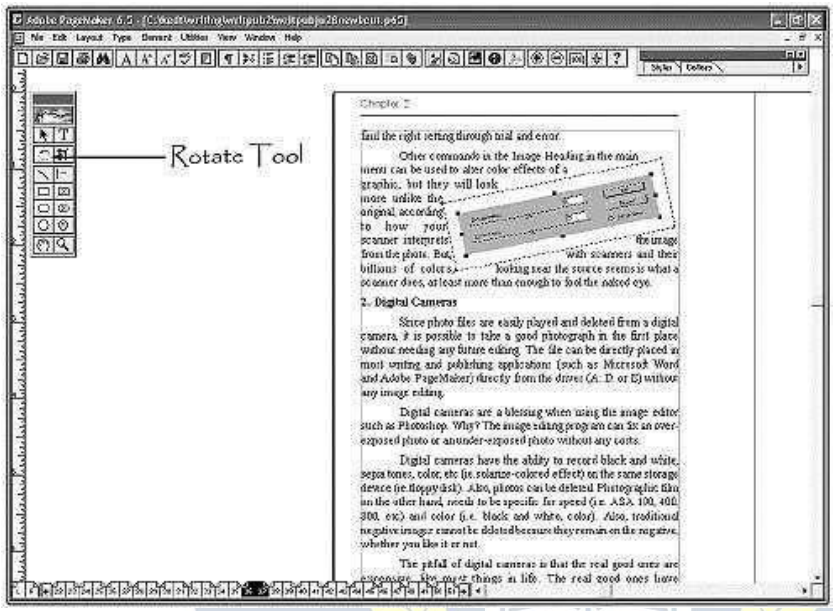
The pointer tool is the power tool. It is used for many applications such as moving graphics, changing size of graphics, deleting graphics, altering drawing sizes and shapes madefrom thedrawing tools intheToolboxandmovingtext to anewpage.

RotateTool

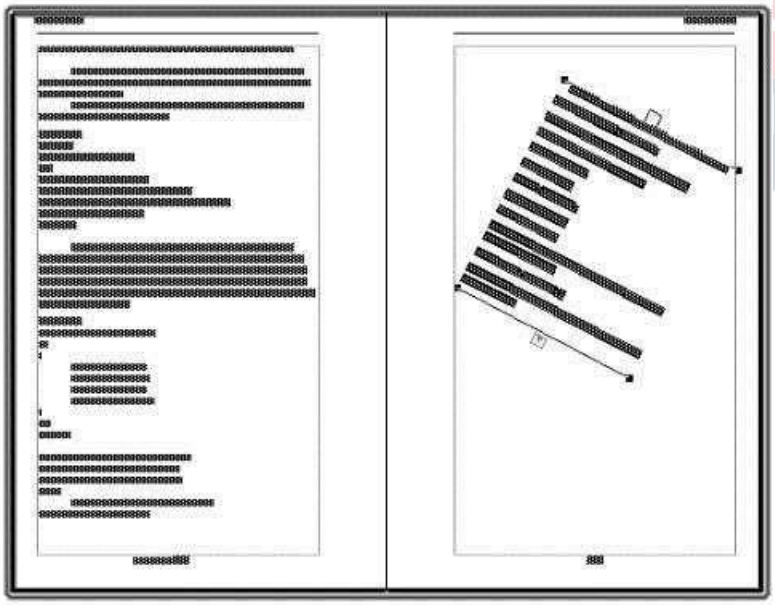
Therotationtoolisusedtorotateagraphicortext.Torotateagraphic,Clickonagraphic, Click on the rotation tool



Rotatethegraphic

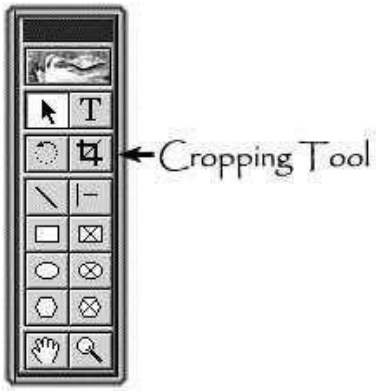


Torotate text,
Clickinthedocumentuntilthelineswiththehandlesshowup.Movethehandleoverthe desiredtext.Gotothetoolboxandclickontherotatetool.Withamouse,movethetext how you want it presented

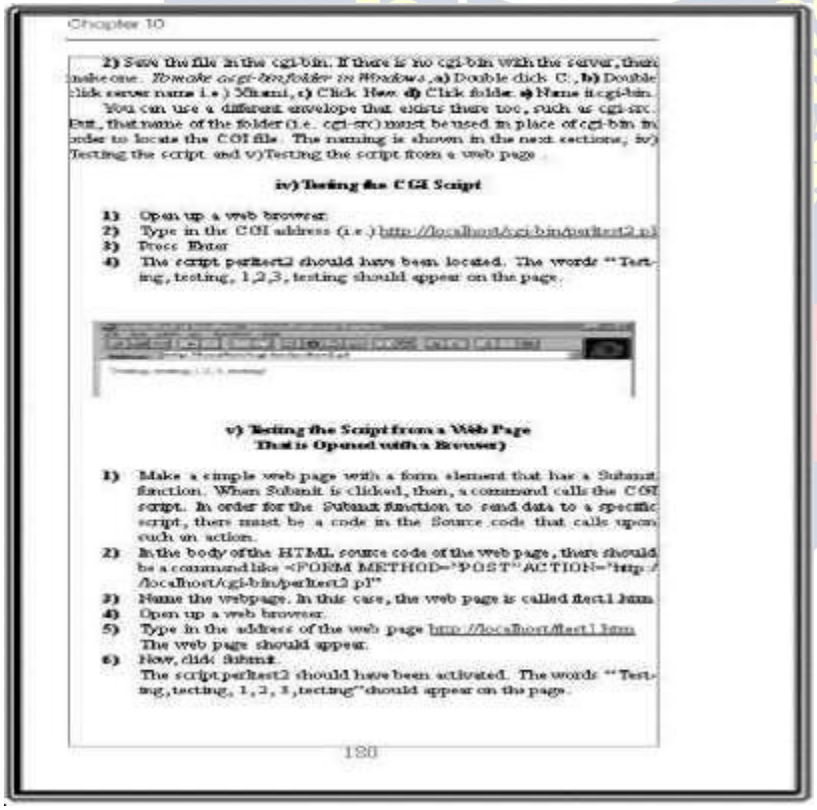


CroppingTool

TheCroppingToolisusedtocutoutsomeofagraphic.
Tocrop agraphic,
Clickingonagraphicwiththepointertoolorcroppingtool.Clickthecroppingtoolto activate it.



Dragoneofthecornersorsideblackboxesuntilthesectionyouwanttocutoutgetscut out.


Chapter 10

2) Save the file in the cgi-bin. If there is no cgi-bin with the server, then make one. *To make cgi-bin folder in Windows*, a) Double click C:, b) Double click server name i.e.) Sikumi, c) Click New, d) Click folder, e) Name it cgi-bin.
You can use a different envelope that exists there too, such as cgi-src. But, that name of the folder (i.e. cgi-src) must be used in place of cgi-bin in order to locate the COI file. The naming is shown in the next sections, iv) Testing the script and v)Testing the script from a web page.

iv) Testing the CGI Script

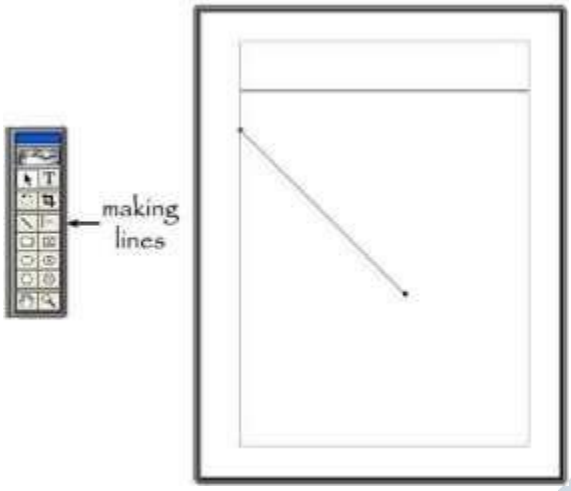
1) Open up a web browser.
2) Type in the COI address (i.e.) http://localhost/cgi-bin/perltest2.pl
3) Press Enter
4) The script perltest2 should have been located. The words "Testing, testing, 1,2,3, testing should appear on the page.

v) Testing the Script from a Web Page That is Opened with a Browser)

1) Make a simple web page with a form element that has a Submit function. When Submit is clicked, then, a command calls the COI script. In order for the Submit function to send data to a specific script, there must be a code in the Source code that calls upon such an action.
2) In the body of the HTML source code of the web page, there should be a command like <FORM METHOD="POST"ACTION="http://localhost/cgi-bin/perltest2.pl"
3) Name the webpage. In this case, the web page is called first1.htm.
4) Open up a web browser.
5) Type in the address of the web page http://localhost/first1.htm
The web page should appear.
6) Now, click Submit.
The script perltest2 should have been activated. The words "Testing, testing, 1, 2, 3, testing" should appear on the page.

180

Thenexttwotoolsareusedtomakelines.

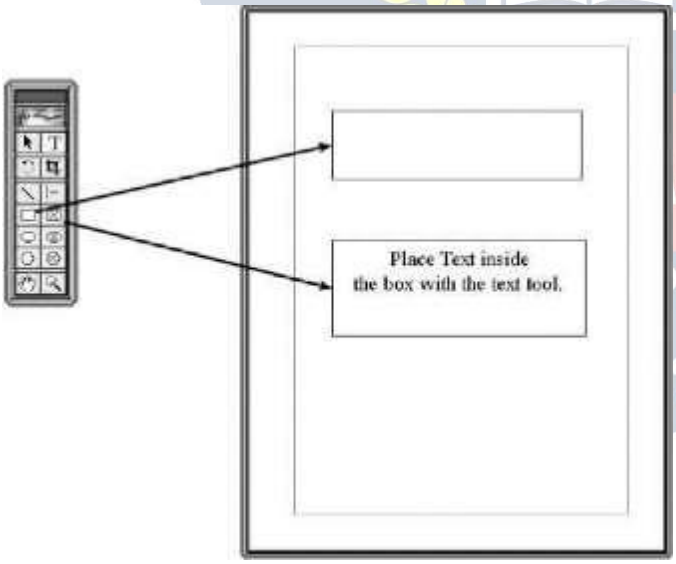


RectangularTools

The next two commands are the rectangle tool and the rectangle tool with an Xinsideof therectangle.Theboxontheleftismadeforrectangles.Anylinethicknessandcolorcan be customized. The rectangle on the right-hand side, works well for placing graphics and aligned text inside of the rectangle or square.

Tochangethepatterninsidetherectangle,

Rightclickontherectanglewiththepolygontoolorthepointertool.Clickfillandstroke. Make choices



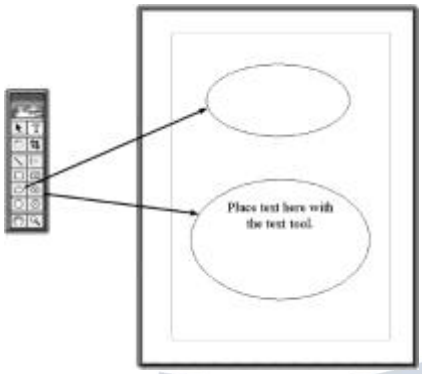
Elliptical Tools

Thenexttwotools(9-10)dothesamethingastherectangulartoolswiththeonly difference being the circular.6.11.

Theboxontheleftismadeforellipticaldesign.Anylinethicknessandcolorcanbe

customized.Theellipseontheright-handsideisusedisusedtomakeellipsesforwhich graphics and aligned text can be inserted inside of the circle.

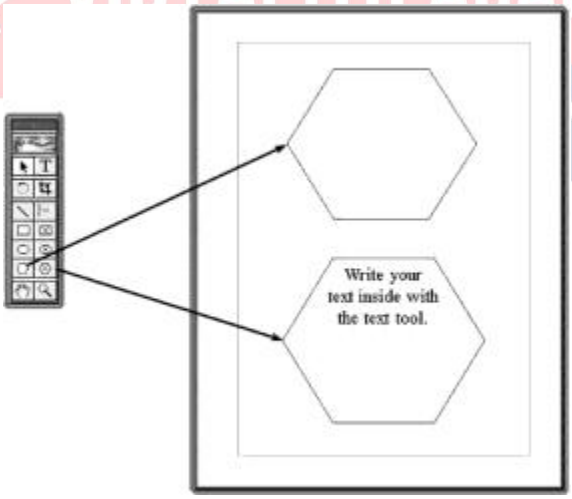
Tochangethepatterninsidetheellipse,Rightclickontheellipsewiththepolygontoolor the pointer tool. Click fill and stroke. Make choices



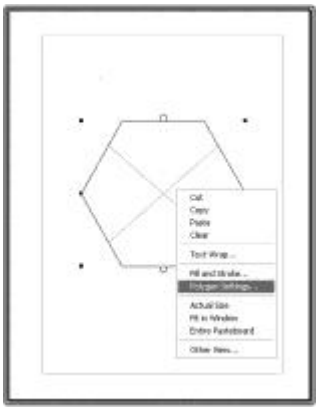
PolygonTools

Thenexttwotoolsmakepolygonshapes.
The box on the left is made for a polygon design. Any line thickness and color can be customized. The polygon on the right-hand side is used is used to make polygons for whichgraphicsandalignedtextcanbeinsertedinsideofthecircle.Todrawapolygon,

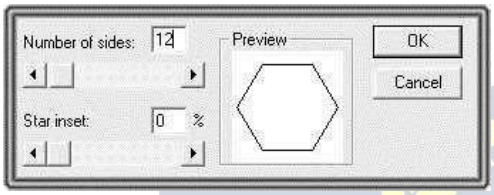
- Click apolygontool
- Leftclickthemouseanddragthemouseuntilyougetthesizeanddesired shape.
- Tochangethepatterninsidethepolygon,
- Rightclickonthepolygonwiththepolygontoolorthepointertool.
- Clickfillandstroke
- Makechoices



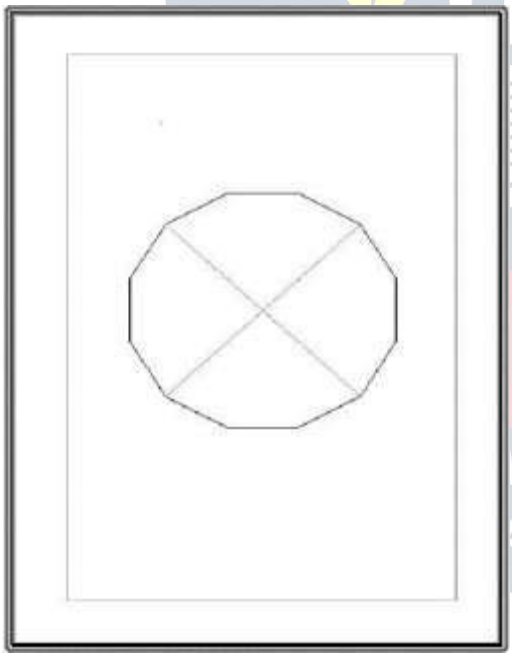
Tomakeapolygonwithadifferentnumberofsides,Clicktherightpolygontool, Click Polygon Settings



Putin aspecificnumber



ClickOK



To make a unique shape,

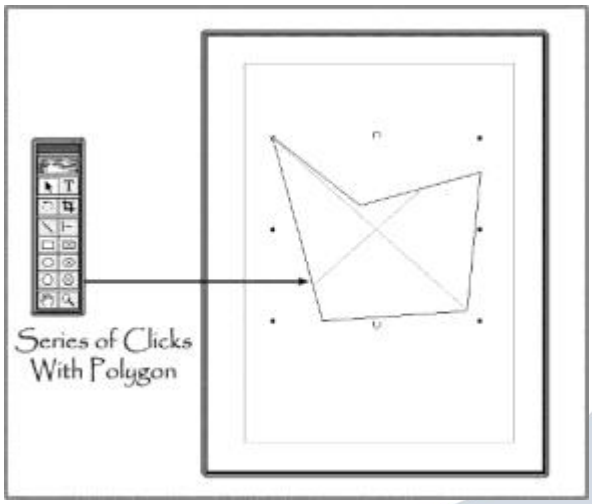
Clicktherightpolygontool

Make a single click on the page

Movethemousetoanewplace

Click the mouse

Repeatforallnewlines



HandTool

Thehandtoolisusedinlayoutmodetomovethepagestoadesiredposition.

Tomoveapage,
Leftclickthemouseonapageanddragthepageswhereyouwantthem.

Magnifyingtool

Themagnifyingglassisusedtomagnifythedocument.Tomagnifythepage,Clickthemagnifying tool. Clickthepage.

CORELDRAW

CorelDraw(styledCorelDRAW)isavectorgraphicseditordevelopedandmarketed by Corel Corporation of Ottawa, Canada. It is also the name of Corel's Graphics Suite, which bundles CorelDraw with a bitmap image editor, Corel PhotoPaint, and other graphics-related programs (see below). The latest version is designated X6 (equivalent to version 16), and was released in March 2012.

Supportedplatforms

CorelDrawwasoriginallydevelopedforMicrosoft Windows3 andcurrentlyruns on WindowsXP, WindowsVista,and Windows7.Thecurrentversion,X6,wasreleased on 20 March 2012.

Versions for Mac OS and Mac OS X were at one time available, but due to poor salesthesewerediscontinued.ThelastportforLinuxwasversion9(releasedin2000,itdidnot runnatively;instead,itusedamodifiedversionofWinetorun)andthelastversionforOS X was version 11 (released in 2001). Also, up until version 5, CorelDraw was developedfor Windows 3.1x, CTOS and OS/2.

Characteristicfeatures

Severalinnovationstovector-basedillustrationoriginatedwithCorelDraw:anode-edittool that operates differently on different objects, fit text-to-path, stroke-before-fill, quick fill/stroke color selection palettes, perspective projections, mesh fills and complex gradient fills.

CorelDrawdifferentiatesitselffromitscompetitorsinanumberofways:

Thefirstisitspositioningasagraphicssuite,ratherthanjustavectorgraphicsprogram.A full range of editing tools allow the user to adjust contrast, color balance, change the format from RGB to CMYK, add special effects such as vignettes and special borders to bitmaps.BitmapscanalsobeeditedmoreextensivelyusingCorelPhotoPaint,opening thebitmapdirectlyfromCorelDrawandreturningtotheprogramaftersaving.Italsoallows a laser to cut out any drawings.

CorelDraw is capable of handling multiple pages along with multiple master layers. Multipage documents are easy to create and edit and the Corel print engine allows for booklet and other imposition so even simple printers can be used for producing finished documents.Oneoftheusefulfeaturesforsingleand multi-pagedocumentsistheabilityto create linked text boxes across documents that can be resized and moved while the text itself resets and flows through the boxes. Useful for creating and editing multi-article newsletters etc.

Smaller items, like business cards, invitations etc., can be designed to their final page size andimposedtotheprinter'ssheetsizeforcost-effectiveprinting.Anadditionalprint-merge feature (using a spreadsheet or text merge file) allows full personalization for many things like numbered raffle tickets, individual invitations, membership cards and more.

CorelDraw's competitors include Adobe Illustrator and Xara Photo & Graphic Designer. Although all of these are vector-based illustration programs, the user experience differs greatly between them. While these programs will read their native file types and vice versa, the translation is rarely perfect. CorelDraw can open Adobe PDF files: Adobe PageMaker, Microsoft Publisher and Word, and other programs can print documents to PDFusingtheAdobePDFWriterprinterdriver,whichCorelDrawcanthenopenandedit

everyaspectoftheoriginallayoutanddesign.CorelDRAWcanalso openPowerPointpresentationsandotherMicrosoftOfficeformatswithlittleornoproblem.

CorelDrawGraphicsSuite

Over time, additional components were developed or acquired and bundled with CorelDraw. The list of bundled packages usually changes somewhat from one release to the next, though there are several mainstays that have remained in the package for many releases now, includingPowerTrace (a bitmap to vector graphic converter), Photo-Paint (a bitmap graphic editor), and Capture (a screen capture utility).

The current version of CorelDraw Graphics Suite X6 (version 16), contains the following packages:

- CorelDrawX6,anintuitivevector-illustrationandpage-layoutapplication
- Corel Photo-PaintX6,animage-editingapplication
- CorelPowerTraceX6,autilitytoconvertbitmapsintoeditablevectorgraphics
- CorelConnect,afull-screenbrowsertosearchthesuite'sdigitalcontent
- CorelCaptureX6,ascreencaptureutility
- CorelWebsiteCreatorX6,newwebsitecreationsoftware

CDRFileFormat

CDR file format is a proprietaryfile format developed by Corel Corporation and primarily used for vector graphic drawings. There is no publicly available CDR file format specification.

Other CorelDraw file formats include CorelDraw Compressed (CDX), CorelDraw Template (CDT) and Corel Presentation Exchange (CMX).

InDecember2006thesK1opensourceprojectteamstartedtoreverse-engineerthe CDR format. The results and the first working snapshot of the CDR importer were presentedattheLibreGraphicsMeeting2007conferencetakingplaceinMay2007in Montreal (Canada). Later on the team parsed the structure of other Corel formats with thehelpoftheopensourceCDRExplorer.Asof2008,thesK1projectclaimstohave the best import support for CorelDraw file formats among open source software programs. The sK1 project developed also the UniConvertor, a command line open source tool which supports conversion from CorelDraw ver.7-X4 formats (CDR/CDT/CCX/CDRX/CMX)tootherformats.UniConvertorisalsoused in Inkscape and Scribusopen source projects as an external toolfor CorelDrawfiles importing.

In 2007, Microsoft blocked CDR file format in Microsoft Office 2003 with the release of Service Pack 3 for Office 2003. Microsoft later apologized for inaccurately blaming the CDR file format and other formats for security problems in Microsoft Office and released some tools for solving this problem.

In 2012 the joint LibreOffice/re-lab team implemented libcdr, a library for reading CDR files from v1 to the currently latest X6 version and CMX files. The library has extensive support for shapes and their properties, including support for color management and spotcolors,andhasabasicsupportfortext.Thelibraryprovidesabuilt-inconverterto SVG, and a converter to OpenDocument is provided by writerperfect package. The libcdr library is expected to be used in LibreOffice 3.6, and thanks to public API it can be freely used by other applications.

CorelDrawTools:

	**Picktool**-Select,position,ortransformobjects.
	**Freehand Pick tool** -Selectobjectsbyusingafreehandselectionmarquee. Position and transform objects.
	**Shapetool(F10)**-Editacurveobjectortextcharacterbymanipulatingnodes.
	**Smudge Brush tool** -Changetheshapeofanobjectbydraggingalongits outline.
	**RoughenBrushtool**-Distorttheedgeofanobjectbydraggingalongitsoutline.
	**FreeTransformtool**-Rotate,skew,mirror,andscaleobjects.
	**Smear tool**-Changetheedgeofanobjectbydraggingalongitsoutline.
	**Twirltool**-Addswirleffectsbydraggingalongtheoutlineofanobject.
	**Attracttool**-Reshapeobjectsbyattractingnodestothecursor.
	**Repeltool**-Reshapeobjectsbypushingnodesawayfromthecursor.
	**Smoothtool** -Smoothobjectbydraggingalongitsoutline.

	**Croptool**-Removetheareasoutsideaselection.
	**Knifetool**-Sliceanobjecttosplititintotwoseparateobjects.
	**Erasertool(X)**-Removeunwantedareasinadrawing.
	**VirtualSegmentDeletetool**-Removeoverlappingsegmentsinobjects.
	**Zoomtool(Z)**-Changethemagnificationlevelofthedocumentwindow.
	**Pantool(H)**-Draghiddenareasofadrawingintoviewwithoutchangingthe zoom level.
	**Freehandtool(F5)** -Drawcurvesandstraightlinesegments.
	**2-PointLinetool**-Drawastraightlinebydrawingfromthestartingpointtothe endpoint.
	**Beziertool**-Drawcurvesonesegmentatatime.
	**Artistic Media tool (I)** -Addartisticbrush,spray,andcalligraphiceffectsbyusing freehand strokes.
	**Pentool**-Drawcurvesinsegments,andprevieweachsegmentasyoudraw.
	**B-Spline tool** -Drawcurvedlinesbysettingcontrolpointsthatshapethecurve without breaking it into segments.
	**Polyline tool** -Drawconnectedcurvesandstraightlinesinonecontinuous action.
	**3-PointCurvetool**-Drawacurvebydraggingfromthestartingpointtothe endpoint and then positioning the center point.
	**Smart Filltool** -Createobjectsfromoverlappingareas,andapplyafilltothose objects.
	**Smart Drawing tool (Shift+S)** -Convertfreehandstrokestobasicshapesor smoothed curves.
	**Rectangle tool (F6)** -Drawsquaresandrectanglesbydragginginthedrawing window.
	**3-Point Rectangletool**-Drawrectanglesatanangle.
	**Elipsetool(F7)**-Drawcirclesandelipsesbydragginginthedrawingwindow.
	**3-PointElipsetool**-Drawselipsesatanangle.
	**Polygontool(Y)**-Drawpolygonsbydraggiginthedrawingwindow.
	**Startool**-Drawuniform,outlinedstars.
	**ComplexStartool**-Drawstarsthathaveintersectingsides.

	**GraphPaper tool (D)**-Drawagrid.
	**Spiraltool(A)**-Drawsymmetricalandlogarithmicspirals.
	**BasicShapes tool**-Drawtriangles,circles,cylinders,heartsandothershapes.
	**ArrowShapestool**-Drawarrowsofvariousshapesanddirections.
	**FlowchartShapestool-**Drawflowchartsymbols.
	**Banner Shapestool**-Drawribbonobjectsandexplosionshapes.
	**CalloutShapestool**-Drawlabelsandspeech bubbles.
	**Texttool(F8)**-Addandeditparagraphandartistictext.
	**Tabletool**-Draw,select,andedittables.
	**Parallel Dimension tool**-Drawslanteddimensionlines.
	**HorizontalorVerticalDimensiontool** -Drawhorizontalorverticaldimension lines.
	**AngularDimension tool**-Drawangulardimensionlines.
	**Segment Dimension tool** -Displaythedistancebetweenendnodesonsingleor multiple segments.
	**3-PointCallouttool**-Drawacalloutwithatwo-segmentleadingline.
	**Straight-LineConnectortool**-Drawastraightlinetoconnecttwoobjects.
	**Right-AngleConnectortool**-Drawarightangletoconnecttwoobjects.
	**Right-AngleRoundConnectortool**-Drawarightanglewitharoundedcornerto connect two objects.
	**EditAnchortool** -Modifytheconnectorlineanchorpointsofobjects.
	**Blend tool** -Blendobjectsbycreatingaprogressionofintermediateobjectsand colors.
	**Contour tool** -Applyaseriesofconcentricshapesthatradiateintooroutofan object.
	**Distort tool** -TransformobjetsbyapplyingPushandPull,Zipper,orTwister effects.
	**DropShadowtoolt**-Applyshadowsbehindorbelowobjects
	**Envelope tool** -Changetheshapeofanobjectbyapplyinganddraggingthe nodes of an envelope.
	**Extrudetool**-Apply3Defecttoobjectstocreatetheillusionofdepth.
	**Transparencytool**-Partiallyrevealimageareasunderneaththeobject.
	**ColorEyedroppertool**-Samplecolors,andapplythemtoobjects
	**OutlinePen(F12)**-Setoutlinepropertiessucjaslinethickness,cornershape,

	andarrowtype.
	**Outline Color (Shift+F12)** -Choosetheoutlinecolorbyusingcolorviewersand color palettes.
	**Uniform Fill (Shift+F11)** -Chooseasolidfillcolorforanobjectbyusingcolor palettes, color viewers, color harmonies, or color blends.
	**FountainFill(F11)**-Fillanobjectwithagradientofcolorsorshades.
	**PatternFill**-Applyapresetpatternfilltoanobjectorcreateacustompatternfill.
	**TextureFill**-Applypresettexturefillstoobjectstocreatetheillusionofavariety of textures, such as water, clouds and stone.
	**PostScriptFill**-ApplyanintricatePostScripttexturefilltoanobject.
	**Interactive Fill tool (G)** -Createafilldynamicallybyusingmarkersinthedrawing window and property bar to change the angle, midpoint, and color.
	**Mesh Fill tool (M)** -Fillanobjectbyblendingmultiplecolorsorshadesarranged over a mesh grid.

AdobePhotoshop

Adobe Photoshop is a graphics editing program developed and published by AdobeSystems.

Adobe's 2003 "Creative Suite" rebranding led to Adobe Photoshop 8's renaming to Adobe Photoshop CS. Thus, Adobe Photoshop CS6 is the13th major release of AdobePhotoshop. The CS rebranding also resulted in Adobe offering numerous software packages containing multiple Adobe programs for a reduced price. Adobe Photoshop is released in two editions: Adobe Photoshop, and Adobe Photoshop Extended, with the Extended having extra 3D image creation, motion graphics editing, and advanced image analysis features. Adobe Photoshop Extended is included in all of Adobe's Creative Suite offerings except Design Standard, which includes the Adobe Photoshop edition.

AlongsidePhotoshopandPhotoshopExtended,AdobealsopublishesPhotoshopElements and Photoshop Lightroom, collectively called "The Adobe Photoshop Family". In 2008, Adobe released Adobe Photoshop Express, a free web-based image editing tool to edit photos directly on blogs and social networking sites; in 2011 a version was released for the Android operating system and the iOSoperating system.

FileFormat

Photoshop files have default file extension as .PSD, which stands for "Photoshop Document." A PSD file stores an image with support for most imaging options available in Photoshop. These include layers with masks, transparency, text, alpha channels and spotcolors, clipping paths, and duotone settings. This is in contrast to many other file formats (e.g. .JPG or .GIF) that restrict content to provide streamlined, predictable functionality. A PSD file has a maximum height and width of 30,000 pixels, and a length limit of 3 Gigabytes.

Photoshop files sometimes have the file extension .PSB, which stands for "Photoshop Big" (also known as "large document format"). A PSB file extends the PSD file format, increasingthemaximum heightand width to300,000pixels and thelength limit toaround 4 Exabytes. The dimension limit was apparently chosen arbitrarily by Adobe, not based on computerarithmeticconstraints(itisnotclosetoapoweroftwo,asis30,000)butforease of software testing. PSD and PSB formats are documented.

Because of Photoshop's popularity, PSD files are widely used and supported to some extent by most competing software. The .PSD file format can be exported to and from Adobe's other apps like Adobe Illustrator, Adobe Premiere Pro, and After Effects, to make professional standard DVDs and provide non-linear editing and special effects services, such as backgrounds, textures, and so on, for television, film, and the web. Photoshop's primary strength is as a pixel-based image editor, unlike vector-based image editors. Photoshop also enables vector graphics editing through its Paths, Pen tools, Shape tools, Shape Layers, Type tools, Import command, and Smart Object functions. These tools and commands are convenient to combine pixel-based and vector-based images in one Photoshop document,because it maynot benecessaryto use morethan one program.To create very complex vector graphics with numerous shapes and colors, it may be easier to use software that was created primarily for that purpose, such as Adobe

Illustrator or CorelDRAW.Photoshop's non-destructive Smart Objects can also import complex vector shapes.

LanguageAvailabilities

Photoshopisavailableinmorethan20languages.Thesearethefollowing:

Chinese Simplified, Chinese Traditional, Czech, Danish, Dutch, English, Finnish, French, German,Hungarian,Italian,Japanese,Korean,Norwegian,Polish,Portuguese, Romanian,Russian,Spanish,Swedish,TurkishandUkrainian.AlsoArabicandHebrew as of Photoshop CS6.

Plugins

Photoshopfunctionalitycan be extended by add-on programs called Photoshop plug-in (or plug-ins). Adobe creates some plug-in, such as Adobe Camera Raw, but third-party companies develop most plug-in, according to Adobe's specifications. Some are free and some are commercial software. Most plug-in work with only Photoshop or Photoshop-compatible hosts, but a few can also be run as standalone applications.

Therearevarioustypesofplug-in,suchasfilter,export,import,selection,colorcorrection, and automation. The most popular plug-in are the filter plug-in (also known as a 8bf plug- in), available under the Filter menu in Photoshop. Filter plug-in can either modify the current image or create content. Below are some popular types of plug-in, and some well- known companies associated with them:

- Colorcorrectionplug-in
- Specialeffectsplug-in
- 3Deffectsplug-in

Adobe Camera Raw (also known as ACR and Camera Raw) is a special plugin, supplied free by Adobe, used primarily to read and process raw image files so that the resultant images can be processed by Photoshop. It can also be used from within Adobe Bridge.

Tools

Upon loading Photoshop, a sidebar with a variety of tools with multiple image-editing functions appears to the left of the screen. These tools typicallyfall under the categories of drawing; painting; measuring and navigation; selection; typing; and retouching. Some tools contain a small triangle in the bottom right of the toolbox icon. These can be expanded to reveal similar tools. While newer versions of Photoshop are updated to include new tools and features, several recurring tools that exist in most versions are discussed below.

Pen Tool

Photoshop includes a fewversions of the pen tool.The pen tool creates precise paths that can be manipulated using anchor points. The freeform pen tool allows the user to draw

paths freehand, and with the magnetic pen tool, the drawn path attaches closely to outlinesof objects in an image,which is usefulfor isolating them from abackground.

Measuring and navigation

The eyedropper tool selects a**color**from an area of the image that is clicked, and samples it for future use. The hand tool navigates an image by moving it in any direction, and the zoom tool enlarges the part of an image that is clicked on, allowing for a closer view.

Selection

Byusingpathselectiontool,wecanselectpathnodes.

Cropping

The crop tool can be used to select a particular area of an image and discard the portions outside of the chosen section. This tool assists in creating a focus point on an image and excluding unnecessary or excess space. Cropping allows enhancement of a photo's composition while decreasing the file size. The "crop" tool is in the tools palette, which is located on the right side of the document.

Slicing

The "slice" and slice select tools, like the crop tool, are used in isolating parts of images. The slice tool can be used to divide an image into different sections, and these separate parts can be used as pieces of a web page design once HTML and CSS are applied. The slice select tool allows sliced sections of an image to be adjusted and shifted.

Moving

Onceanareaof animageishighlighted,themovetoolcanbeusedtomanuallyrelocate the selected piece to anywhere on the canvas.

Marquee

The marquee tool can make selections thatare single row, single column, rectangular and elliptical. An area that has been selected can be edited without affecting the rest of the image. This tool can also cropanimage;itallowsforbettercontrol.Incontrastto the crop tool, the "marquee" tool allows for more adjustments to the selected area before cropping. The only marquee tool that does not allow cropping is theelliptical.

Lasso

The lasso tool is similar to the "marquee" tool, however, the user can make a custom selection by drawing it freehand. There are three options for the "lasso" tool – regular, polygonal, and magnetic. The regular "lasso" tool allows the user to have drawing capabilities. Photoshop will complete the selection once the mouse button is released. The usermayalsocompletetheselectionbyconnectingtheendpointtothestartingpoint.The "marching ants" will indicate if a selection has been made. The "polygonal lasso" tool will only draw straight lines, which makes it an ideal choice for images with many straight lines. Unlike theregular "lasso" tool,the user must continually clickaround theimageto

outline the shape. To complete the selection, the user must connect the end point to the starting point just like the regular lasso tool. "Magnetic lasso" tool is considered the smart tool.

Quick Selection

The quick selection tool selects areas based on edges, similarlyto the magnetic lasso tool. The difference between this tool and the lasso tool is that there is no starting and ending point. Since there isn't a starting and ending point, the selected area can be added on to as much as possible without starting over.

Magic Wand

Themagicwandtool selectsareas basedonpixels.Theuseronly needstoclickonce, andthistoolwill detect pixels thatare verysimilar toeachother. If theeye dropper tool is selected in the options bar, then the magic wand can determine the value needed to evaluate the pixels; this is based on the sample size setting in the eyedropper tool. When the image requires more than a few clicks, this tool becomes a disadvantage. The user mustdecidewhatsettingstouseorif theimageisrightforthistool.

Eraser

Theerasertooldoesexactlywhatit'scalled.Iterasesanimagebasedonthelayeritison. If theuserisonthetextlayer,thenanytext thatthetoolisdraggedacrosswillbeerased. The erased area will convert the pixels to transparent, unless it is the background layer. The size and style of the eraser can be selected in the options bar. This tool is unique in thatitcantaketheformofthepaintbrushandpenciltools.Inadditiontothestraighteraser tool, there are two more available options – background eraser and magic eraser.

Typing

Photoshop also provides tools for adding and editing text. The type tools create an area where text can be entered, and the type mask tools create a selection area that has the shape of text. The type tool creates vector-based text, so symbols, letters and numbers in various fonts and colors can be re-sized while maintaining the same quality.

Retouching

There are several tools that are used for retouching, manipulating and adjusting photos, such as the clone stamp, eraser, burn, dodge, smudge and blur tools. The clone stamp tool samples a selected portion of an image, and duplicates it over another area using a brush that can be adjusted in size, flow and opacity. The smudge tool, when dragged across part of an image, stretches and smudges pixels as if they are real paint, and the blurtoolsoftensportionsof animagebyloweringtheamountofdetailwithintheadjusted area.

Content-aware

Content-awareness is a useful aspect of Photoshop where image editing is done automaticallyand intelligently. It comes in two forms, content-aware scaling, and content-awarefilling, in which elements in abackgroundautomaticallyrecompose accordingtothe

areas a user of the program decides to fill or scale. More specifically, content-awarescaling works by rescaling an image and causing its content to adapt to the new dimensions and preserving important areas of it. Content-aware filling functions by matching tone, color, and noise of an area of the image that contained an object or detail in which the user decides to remove.

Healingtools

With improvement retouching tools like the Clone Stamp tool and Healing Brush tool, imperfections of an image can easily be removed. These tools essentially function by locatinga sourcepoint(ormultiple sourcepoints)that can be scaled orrotated inorderto cover an imperfection or unwanted detail in a specific area of an image.

Puppetwrap

Similartothecontent-awaretool,thepuppetwarptoolrevealsPhotoshop'sintelligenceby allowing a user to reposition an object in an image such as a flower or arm. This is done byusingpointsthatoutlinethestructureofanobjectandeasilyrepositioninginthewanted orientation.

Video Editing

In Adobe CS5 Extended edition, video editing is comprehensive and efficient with a broad compatibility of video file formats such as MOV, AVI,MPEG-4, and FLVformats and easy workflow.Usingsimplecombinationof keysvideolayerscaneasilybemodified,withother features such as adding text and the creation of animations using single images.

3D

With the Extended version of Photoshop CS5, 2D elements of an artwork can easily become three-dimensional with the click of a button. Extrusions of texts, an available library of materials for three-dimensional, and even wrapping two-dimensional images around 3D geometry are all possible with this version of Photoshop. Realism can also be added to an image using the 3D features of Photoshop such as animating image-based lights and depth of field.

Mobile integration

Third-party plug-in have also been added to the most recent version of Photoshop where technologies such as the iPad have integrated the software with different types of applications. Applications like theAdobe Easel painting app allows the user to easilycreate paintings with their fingertips and use an array of different paint from dry to wet in order to create rich color blending.

HTML/DHTML,CSS&Div

HTML

Hyper Text Markup Language (HTML) is the main markup language for creating webpages and other information that can be displayed in a web browser.

HTML is written in the form of HTML elements consisting of tags enclosed in anglebrackets (like `<html>`), within the web page content. HTML tags most commonly come in pairslike`<h1>`and`</h1>`,althoughsometags,knownasemptyelements,areunpaired,for example`<img>`.Thefirsttaginapairisthestarttag,andthesecondtagistheend tag (they are also called opening tags and closing tags). In between these tags web designers can add text, tags, comments and other types of text-basedcontent.

The purpose of a web browser is to read HTML documents and compose them into visible or audible web pages. The browser does not display the HTML tags, but uses the tags to interpret the content of the page.

HTMLelementsformthebuildingblocksofallwebsites.HTMLallowsimagesandobjects to be embedded and can be used to create interactive forms. It provides a means tocreatestructureddocumentsbydenotingstructuralsemanticsfortextsuchasheadings, paragraphs, lists, links, quotes and other items. It can embed scripts written in languages such as JavaScript which affect the behavior of HTML web pages.

Web browsers can also refer to Cascading Style Sheets (CSS) to define the appearance and layout of text andothermaterial. The W3C, maintainerof both the HTMLand the CSS standards, encourages the use of CSS over explicit presentational HTML markup.

Markup

HTMLmarkupconsistsofseveralkeycomponents,including elements (and their attributes), character-based data types, character references and entity references. Another important component is the document type declaration, which triggers standardsmode rendering.

The following is an example of the classic Hello world program, a common test employed for comparing programming languages, scripting languages and markup languages. This example is made using 9 lines of code:

```
<!DOCTYPEhtml>
<html>
  <head>
    <title>HTML</title>
  </head>
  <body>
    <p>Helloworld!</p>
```

```
  </body>
</html>
```

(Thetextbetween<html>and</html>describesthewebpage,andthetextbetween <body>and</body>isthevisiblepagecontent.Themarkuptext'<title>Hello HTML</title>' defines the browser page title.)

ThisDocumentTypeDeclarationisforHTML5.Ifthe<!DOCTYPE html>declarationisnot included, various browsers will revert to "quirks mode" for rendering.

Elements

HTML documents are composed entirely of HTML elements that, in their most generalformhavethreecomponents:apairof tags,a"starttag"and"endtag"; someattributeswithinthestarttag;andfinally,anytextualandgraphicalcontentbetween the start and end tags, perhaps including other nested elements. The HTML element is everything between and including the start and end tags. Each tag is enclosed in angle brackets.

The general form of an HTML element is therefore: <tag attribute1="value1"attribute2="value2">content</tag>. Some HTML elements are defined as empty elements and take the form <tag attribute1="value1" attribute2="value2">. Empty elements may enclose no content, for instance, the BR tag or the inline IMG tag. The name of an HTML element is thenameused in thetags. Notethatthe endtag's name ispreceded bya slash character, "/",andthatinemptyelementstheendtagisneitherrequirednorallowed.Ifattributesare not mentioned, default values are used in each case.

Element examples

Header of the HTML document:<head>...</head>. Usually the title should be included in the head, for example:

```
<head>
  <title>The Title</title>
</head>
```

Headings:HTMLheadingsaredefinedwiththe<h1>to<h6>tags:

```
<h1>Heading1</h1>
<h2>Heading2</h2>
<h3>Heading3</h3>
<h4>Heading4</h4>
<h5>Heading5</h5>
<h6>Heading6</h6>Paragr
```

aphs:

```
<p>Paragraph1</p><p>Paragraph2</p>
```

Linebreaks:
.Thedifferencebetween
and<p>isthat'br'breaksalinewithout alteringthesemanticstructureofthepage,whereas'p'sectionsthepageintoparagraphs.

Notealsothat'br'isanemptyelementinthat,whileitmayhaveattributes,itcantakeno content and it may not have an end tag.

<**p**>This<**br**/>isaparagraph<**br**/>with<**br**/>linebreaks</**p**>Comments:

<!--Thisisacomment-->

Commentscanhelpintheunderstandingofthemarkupanddonotdisplayinthe webpage.

TherearesevеraltypesofmarkupelementsusedinHTML:

Structuralmarkupdescribesthepurposeoftext
For example, <h2>Golf</h2> establishes "Golf" as a second-level heading. Structural markup does not denote any specific rendering, but most web browsers have defaultstyles for element formatting. Content may be further styled using CascadingStyleSheets (CSS).
Presentationalmarkupdescribestheappearanceofthetext,regardlessofits purpose
For example boldface indicates that visual output devices should render "boldface" in bold text, but gives little indication what devices that are unable to do this (suchasauraldevicesthatreadthetextaloud)shoulddo.Inthecaseof both bold and italic, there are other elements that may have equivalent visual renderings but which are more semantic in nature, such as strongtext and emphasised text respectively. It is easier to see how an auraluseragentshouldinterpretthelattertwoelements.However,theyarenotequivalent to their presentational counterparts: it would be undesirable for a screen-reader to emphasize the name of a book, for instance, but on a screen such a name would be italicized.Mostpresentationalmarkupelementshavebecomedeprecatedunderthe HTML 4.0 specification in favor of using CSS for styling.

Hypertextmarkupmakespartsofadocumentintolinkstootherdocuments
Ananchorelementcreatesahyperlinkinthedocumentandits hrefattributesetsthelink's target URL. For example the HTML markup,<ahref="http://www.google.com/">Wikipedia,willrendertheword"Wikipedia"as a hyperlink. To render an image as a hyperlink, an 'img' element is inserted as content into the 'a' element. Like 'br', 'img' is an empty element with attributes but no content or closing tag. <img src="image.gif" alt="descriptive text"width="50"height="50"border="0">.

Characterand entityreferences[edit]

As of version 4.0, HTML defines a set of 252 character entity references and a set of 1,114,050 numeric character references, both of which allow individual characters to be written via simple markup, rather than literally. A literal character and its markup counterpart are considered equivalent and are rendered identically.

The ability to "escape" characters in this way allows for the characters <and &(when writtenas<and&,respectively)tobeinterpretedascharacterdata,ratherthan

markup. For example, a literal <normally indicates the start of a tag, and &normally indicatesthestartof acharacterentityreferenceornumericcharacterreference;writingit as &or &or &allows &to be included in the content of an element or in the value of an attribute.The double-quote character ("), when not used to quote an attribute value,mustalsobeescapedas"or"or"whenitappearswithintheattribute value itself. Equivalently, the single-quote character ('), when not used to quote an attribute value, must also be escaped as 'or '(not as 'except in XHTML documents)whenitappearswithintheattributevalueitself.Ifdocumentauthorsoverlook the need to escape such characters, some browsers can be very forgiving and try to use context to guess their intent. The result is still invalid markup, which makes the document less accessible to other browsers and to other user agents that may try to parse the document for search and indexing purposes for example.

Data types

HTML defines several data types for element content, such as script data and stylesheet data, and a plethora of types for attribute values, including IDs, names, URIs, numbers, units of length, languages, media descriptors, colors, character encodings, dates and times, and so on. All of these data types are specializations of character data.

DHTML

Dynamic HTML, or DHTML, is an umbrella term for a collection of technologies used together to create interactive and animated web sites byusingacombinationofa staticmarkuplanguage(suchasHTML),aclient-sidescriptinglanguage(such as JavaScript), a presentation definition language (such as CSS), and the DocumentObject Model.

DHTML allows scripting languages to change variables in a web page's definitionlanguage, which in turn affects the look and function of otherwise "static" HTML page content, after the page has been fully loaded and during the viewing process. Thus the dynamic characteristic of DHTML is the way it functions while a page is viewed, not in its ability to generate a unique page with each page load.

By contrast, a dynamic web page is a broader concept, covering any web page generated differently for each user, load occurrence, or specific variable values. This includes pages createdbyclient-sidescripting,andonescreatedbyserver-sidescripting (suchas PHP, Perl, JSP or ASP.NET) where the web server generates content before sending it to the client.

DHTML is differentiated from AJAX by the fact that a DHTML page is still request/ reload-based. With DHTML, there may not be any interaction between the client and server after the page is loaded; all processing happens in Javascript on the client side. By contrast, an AJAX page uses features of DHTML to initiate a request (or 'subrequest') to the server to perform actions such as loading more content.

USES

DHTML allows authors to add effects to their pages that are otherwise difficult to achieve. In short words: scripting language is changing the DOM and style. For example, DHTML allows the page author to:

- Animate text and images in their document, independently moving each element from any starting point to any ending point, following a predetermined path or one chosen by the user.
- Embed a ticker that automatically refreshes its content with the latest news, stock quotes, or other data.
- Useaform to captureuserinput,andthenprocess,verifyandrespondto thatdata without having to send data back to theserver.
- Includerolloverbuttonsordrop-downmenus.

A less common use is to create browser-based action games. Although a number ofgames were created using DHTML during the late 1990s and early 2000s, differences between browsers made this difficult: many techniques had to be implemented in code to enable the games to work on multiple platforms. Recentlybrowsers have been converging towards the web standards, which has made the design of DHTML games more viable. Thosegamescanbeplayedonallmajorbrowsersandtheycanalsobeported to Plasma for KDE, Widgets for Mac OS X and Gadgets for Windows Vista, which arebased on DHTML code.

The term "DHTML"hasfallen out of use in recent yearsasit wasassociated with practices and conventionsthat tended tonotworkwell betweenvariousweb browsers.DHTML may now be referred to as unobtrusive JavaScript coding (DOM Scripting), in an effort to place an emphasis on agreed-upon best practices while allowing similar effects in an accessible,standards-compliant way.

DHTML support with extensive DOM access was introduced with Internet Explorer 4.0. although there was a basic dynamic system with Netscape Navigator 4.0, not all HTML elements were represented in the DOM. When DHTML-style techniques became widespread, varying degrees of support among web browsers for the technologiesinvolved made themdifficulttodevelopand debug.Developmentbecameeasier when InternetExplorer5.0+, MozillaFirefox 2.0+,and Opera7.0+adopteda shared DOM inherited from ECMAscript.

More recently, JavaScript libraries such as jQuery have abstracted away much of the day-to-day difficulties in cross-browser DOM manipulation.

Structureof aWeb Page

TypicallyawebpageusingDHTMLissetupinthefollowingway:

```
<!doctypehtml>
```

```
<html lang="en">
    <head>
        <meta charset="utf-8">
        <title>DHTML example</title>
    </head>
    <body>
        <div id="navigation"></div>

        <script>
            var init=function(){
                myObj=document.getElementById("navigation");
                //...manipulate myObj
            };
            window.onload=init;
        </script>

        <!--
        Often the code is stored in an external file; this is done by
        linking the file that contains the JavaScript.
        This is helpful when several pages use the same script:
        -->
        <script src="myjavascript.js"></script>
    </body>
</html>
```

Document Object Model

DHTML is not a technology in and of itself; rather, it is the product of three related and complementary technologies: HTML, Cascading Style Sheets (CSS), and JavaScript. To allow scripts and components to access features of HTML and CSS, the contents of the document are represented as objects in a programming model known as the Document Object Model (DOM).

The DOM API is the foundation of DHTML, providing a structured interface that allows access and manipulation of virtually anything in the document. The HTML elements in the document are available as a hierarchical tree of individual objects, meaning you can examine and modify an element and its attributes by reading and setting properties and by calling methods. The text between elements is also available through DOM properties and methods.

The DOM also provides access to user actions such as pressing a key and clicking the mouse. You can intercept and process these and other events by creating event handler functions and routines. The event handler receives control each time a given event occurs and can carry out any appropriate action, including using the DOM to change the document.

Data Binding

Data binding is a DHTML feature that lets you easily bind individual elements in your document to data from another source, such as a database or comma-delimited text file. When the document is loaded, the data is automatically retrieved from the source and formatted and displayed within the element.

One practical way to use data binding is to automatically and dynamically generate tables in your document. You can do this by binding a table element to a data source. When the document is viewed, a new row is created in the table for each record retrieved from the source,andthecellsofeachrowarefilledwithtextanddatafromthefieldsoftherecord. Because this generation is dynamic, the user can view the page while new rows are created in the table. Additionally, once all the table data is present, you can manipulate (sort or filter) the data without requiring the server to send additional data. The table is regenerated, usingthepreviouslyretrieved data tofillthe newrows and cellsof thetable.

Another practical use of data binding is to bind one or more elements in the document to specificfields of agiven record.Whenthepage isviewed, theelementsarefilled with text anddatafrom thefieldsin that record, sometimescalled the"current" record.An example isaformletterinwhichthename,e-mailaddress,andotherdetailsaboutanindividualare filled from a database. To adapt the letter for a given individual, you specify which record should be the current record. No other changes to the letter are needed.

CSS

CascadingStyleSheets (CSS)isastylesheetlanguage usedfordescribing the presentation semantics (the look and formatting) of a document written in a markuplanguage.Itsmostcommonapplicationisto style webpages writtenin HTML and XHTML, but thelanguagecanalso beappliedtoanykindofXMLdocument,includingplainXML, SVG and XUL.

CSS is designed primarily to enable the separation of document content (written in HTML or a similar markup language) from document presentation, including elements such asthe layout, colors, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple pages to share formatting, and reduce complexity and repetition in the structural content (such as by allowing for tableless web design). CSS can also allow the same markup page to be presented in different styles for different rendering methods, such as on-screen, in print, by voice (when read out by a speech-based browser or screen reader) and on Braille-based, tactile devices. It can also be used to allow the web page to display differently depending on the screen size or device on which it is being viewed. While the author of a document typically links that document to a CSS file, readers can use a different style sheet, perhaps one on their own computer, to override the one the author has specified.

CSS specifies a priority scheme to determine which style rules apply if more than one rule matches against a particular element. In this so-called cascade, priorities or weights are calculated and assigned to rules, so that the results are predictable.

The CSS specifications are maintained by the World Wide Web Consortium (W3C).Internet media type (MIME type)text/cssisregisteredforuse with CSS by RFC2318 (March 1998), and they also operate a free CSS validation service.

Syntax

CSS has a simple syntax and uses a number of English keywords to specify the names of various style properties.

Astylesheetconsistsofalistofrules.Eachruleorrule-setconsistsofoneor more selectors, and a declaration block.

Selector

InCSS,selectorsareusedtodeclarewhichpartofthemarkupastyleappliesto,akindof match expression. Selectors may apply to:

- allelementsofaspecifictype,e.g.thesecondlevelheadersh2
- toelementsspecifiedbyattribute,inparticular:
- id:anidentifieruniquetothedocument
- class
- toelementsdependingonhowtheyareplacedrelativeto,ornestedwithin,others in the document tree.

Pseudo-classes are usedin CSSselectors topermit formatting basedoninformationthat is outside the document tree. An often-used example of a pseudo-class is :hover, which identifies content only when the user 'points to' the visible element,usually by holding the mousecursoroverit.Itisappendedtoaselectorasina:hoveror#elementid:hover.Apseudo-classclassifiesdocumentelements,suchas:linkor:visited,whereasapseudo- element makes a selection that may consist of partial elements, such as :first-lineor :first-letter.

Selectors may be combined in many ways, especially in CSS 2.1, to achieve great specificity and flexibility.

Declarationblock

A declaration-block consists of a list of declarations in braces. Each declaration itself consistsofaproperty,acolon(:),andavalue.Iftherearemultipledeclarationsinablock, a semi-colon (;) must be inserted to separate each declaration.

DIV

In HTML, the span and div elements are used for generic organizational or stylistic applications, typically when extant meaningful elements have exhausted their purpose.
Most HTML elements signify the specific meaning of their content – i.e. the element describes, and can be made to function according to, the type of data contained within. For example, a p element should contain a paragraph of text, while an h1 element should contain the highest-level heading of the page; user agents shoulddistinguish them

accordingly. span and div signify no specific meaning besides the generic grouping of content, and are therefore more appropriate for creating organization or stylistic additions without signifying superfluous meaning.

Default Behaviour

There is one difference between div and span. In standard HTML, a div is a block-levelelement whereas a span is an inline element. The div block visually isolates a section of a document on the page, in the same way as a paragraph. The span element contains a piece of information inline with the surrounding text. In practice, even this feature can be changed by the use of Cascading Style Sheets (CSS).

Practical Usage

spananddivelementsareusedpurelytoimplyalogicalgroupingofenclosedelements. There are three main reasons to use span and div tags with class or id attributes: **Styling with CSS**

Perhapsthemostcommonuseof spananddivelementsistocarryclassoridattributesin conjunction with CSS to apply layout, typographic, color, and other presentation attributes to partsof the content.CSS does not just applyto visualstyling: when spokenout loud by a voice browser, CSS styling can affect speech-rate, stress, richness and even position within a stereophonic image.

For these reasons, and for compatibility with the concepts of the semantic web, discussed below, attributes attached to elements within any HTML should describe their semantic purpose,ratherthanmerelytheirintendeddisplaypropertiesinoneparticularmedium.For example,theHTMLin<spanclass="redbold">passwordtooshortissemantically weak, whereas password too short uses an em element to signify emphasis, and uses a more appropriate class name. By the correct use of CSS, 'warnings'mayberenderedinared,boldfontonascreen,butwhenprintedouttheymay beomitted,asbythenitistoolatetodoanythingaboutthem.Perhapswhenspokenthey should be given extra stress, and a small reduction in speech-rate. The second example is semantically correct markup, rather than merely presentational.

Semantic clarity

Thiskind of groupingand labelingof partsof the page content might be introduced purely to make the page more semantically meaningful in general terms. It is impossible to say how and in what ways the World Wide Webwill developinyearsanddecadesto come. Web pages designed today may still be in use when information systems that we cannot yet imagine are trawling, processing, and classifying the web. Even today's search engines such as Google and others use proprietary information processing algorithms of considerable complexity.

Forsomeyears,the WorldWideWebConsortium(W3C)hasbeenrunninga major Semantic Web project designed to make the whole web increasingly useful and meaningful to today's and the future's information systems.

The micro formats movement is an attempt to build an idea of semantic classes. For example, micro formats-aware software might automatically find an element like 123-456-7890 and allow for automatic dialing of the telephone number.

Accessfromcode

Once the HTML or XHTML markup is delivered to a page-visitor's client browser, there is a chance that client-side code will need to navigate the internal structure (or DocumentObject Model) of the web page. The most common reason for this is that the page is delivered with client-side JavaScript that will produce on-going dynamic behavior after the pageisrendered.Forexample,ifrollingthemouseovera'Buynow'linkismeanttomake

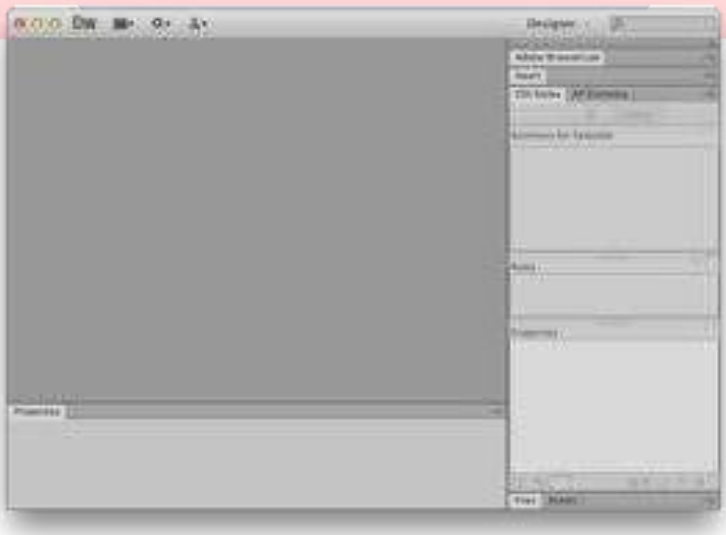
the price, elsewhere on the page, become emphasized, JavaScript code can do this, but JavaScript needs to identify the price element, wherever it is in the markup, in order to affect it. The following markup would suffice: $45.99 . Another example is the Ajax programming technique, where, for example, clicking a hypertext link maycauseJavaScriptcodetoretrievethetextforanewpricequotationtodisplayinplace of the currentone within the page, without re-loadingthe whole page.When the newtext arrives back from the server, the JavaScript must identify the exact region on the page to replace with the new information.

Less common, but just as important examples of code gaining access to final web pages, andhaving tousespan anddivelements'class or id attributes tonavigate within thepage include the use of automatic testing tools. On dynamically generated HTML, this may includetheuseofautomaticpagetestingtoolssuchasHttpUnit,amemberof thexUnitfamily,andloadorstresstesting toolssuchasApache JMeterwhenapplied to form-driven web sites.

Dreamweaver, InDesign,Illustrator

AdobeDreamweaver

Adobe Dreamweaver is a proprietaryweb developmentapplication developed by AdobeSystems. Dreamweaver was originally developed by Macromedia in 1997, and was maintained by them until Macromedia was acquired by Adobe Systems in 2005. Adobe Dreamweaver is available for both Mac and Windowsoperating systems.



Following Adobe's acquisition of the Macromedia product suite, releases of Dreamweaver subsequent to version 8.0 have been more compliant with W3C standards. RecentversionshaveimprovedsupportforWebtechnologiessuchasCSS,JavaScript,and various server-side scriptinglanguages and frameworks including ASP (ASP JavaScript,ASPVBScript,ASP.NETC#,ASP.NETVB),ColdFusion,Scriptlet,andPHP.

Features

AdobeDreamweaver is awebdesignand development applicationthatprovidesa visualWYSIWYGeditor (colloquiallyreferredto asthe Design view) anda codeeditor with standard features such as syntax highlighting, code completion, and code collapsing as well as more sophisticated features such as real-time syntax checking and code introspection for generating code hints to assist the user in writing code.[4]The Design viewfacilitates rapid layout design and code generation asitallows usersto quicklycreate and manipulate the layout of HTML elements. Dreamweaver features an integrated browser for previewing developed webpages in the program's own preview pane in addition to allowing content to be open in locally installed web browsers. It provides transferandsynchronizationfeatures,theabilitytofindandreplacelinesoftextorcodeby search terms or regular expressions across the entire site, and a templating feature that allows single-source update of shared code and layout across entire sites without server- side includes or scripting. The behaviors panel also enables use of basic JavaScriptwithout any coding knowledge, and integration with Adobe's Spry Ajax framework offers easy access to dynamically-generated content and interfaces.

Dreamweaver can use third-party "Extensions" to extend core functionality of the application, which any web developer can write (largely in HTML and JavaScript). Dreamweaver is supported by a large community of extension developers who make extensions available (both commercial and free) for most web development tasks from simple rollover effects to full-featured shopping carts.

Dreamweaver, like other HTML editors, edits files locally then uploads them to the remote webserverusingFTP,SFTP,or WebDAV.DreamweaverCS4nowsupports the Subversion (SVN) version control system.

Syntaxhighlighting

Asof version5,Dreamweaversupports syntaxhighlightingforthefollowinglanguagesout of the box:

- ActionScript
- ExtensibleMarkupLanguage(XML)
- ExtensibleStylesheetLanguageTransformations(XSLT)
- HyperTextMarkupLanguage(HTML)
- Java
- JavaScript
- PHP:HypertextPreprocessor(PHP)
- VisualBasic (VB)

- VisualBasicScriptEdition(VBScript)
- WirelessMarkupLanguage(WML)

SupportforASP.NETandJavaServerPageswasdroppedasofversionCS4.

Itisalsopossibleforuserstoaddtheirownlanguagesyntaxhighlighting.Inaddition, codecompletion is available for many of these languages.

Localization
Languageavailability

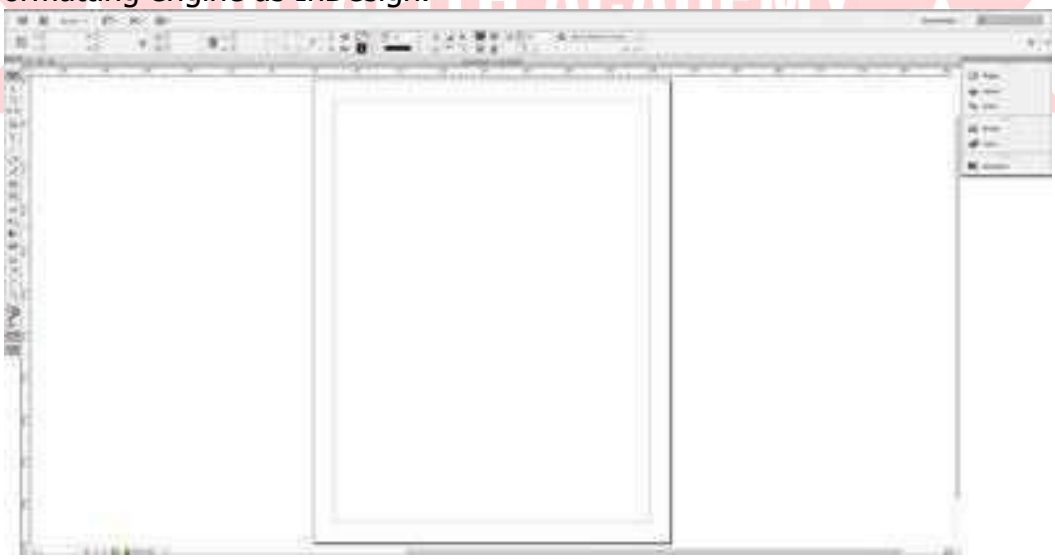
Adobe Dreamweaver CS6 is available in the following languages: Brazilian Portuguese, Chinese Simplified, Chinese Traditional, Czech, Dutch, English, French, German, Italian, Japanese, Korean (Windows only), Polish, Russian, Spanish, Swedish, and Turkish.

SpecificfeaturesforArabic andHebrewlanguages

The older Adobe Dreamweaver CS3 also features a Middle Eastern version that allows typing Arabic, Persian or Hebrew text (written from right to left) within the code view. WhetherthetextisfullyMiddleEastern(writtenfrom rightto left)orincludesbothEnglish andMiddleEasterntext(writtenlefttorightandrighttoleft),itwillbedisplayedproperly.

AdobeInDesign

Adobe InDesign is a desktop publishing software application produced by Adobe Systems. It can be used to create works such as posters, flyers, brochures, magazines, newspapers and books. InDesign can also publish content suitable for tablet devices in conjunctionwith Adobe Digital Publishing Suite. Graphic designers and production artists are the principal users, creating and laying out periodical publications, posters, and print media. It also supports export to EPUB and SWF formats to create digital publications, and content suitableforconsumption on tablet computers. The Adobe InCopy word processoruses the same formatting engine as InDesign.



Localization
Languageavailability

Adobe InDesign CS5 is available in the following languages: Arabic (Middle Eastern version), Brazilian Portuguese, Chinese Simplified, Chinese Traditional, Czech, Danish,

Dutch, English (International & United States), Finnish, French, German, Greek, Hebrew (Middle Eastern version), Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Russian, Spanish, Swedish, Turkish, Ukrainian.

Historicallanguageavailability

Adobe InDesign CS4 offered a Romanian version, though this is no longer available for CS5. French (Canadian) and Spanish (Latin American) versions use the same files as are used in French and Spanish versions, respectively.

Text settings

InDesign Middle Eastern versions come with special settings for laying out Arabic or Hebrew text, such as:

- Abilitytouse Arabic,Persian orHindidigits
- Usekashidasforletterspacingandfulljustification
- Ligatureoption
- Setvowels/diacriticspositioning
- Justify text in three possible ways to get the desired results (Standard, Arabic, Naskh)
- Option to "Insert Special Character": three Hebrew characters (Geresh, Gershayim, Maqaf) and an Arabic one (Kashida)
- Applystandard,ArabicorHebrewstylesforpage,paragraphandfootnote numbering

Bi-directionaltextflow

InInDesignMiddleEasternversions,thenotion ofright-to-leftbehaviourappliestoseveral objects:Story,Paragraph,CharacterandTable.ItallowsformixingRight-to-LeftandLeft- to-Right Words, Paragraphs and Stories in a document.

- InDesign CS4 Middle Eastern versions make it possible to change the direction of neutral characters (forex.:,/?, etc.) according to the user's keyboard language with a single click.
- InDesign CS6 Middle Eastern Editions provide additional support for right-to-left languages.

Tableof contents

InDesign Middle Eastern versions come with a set of Table of contents titles, one for each supported language. The TOC is also sorted according to the chosen language. InDesign CS4 Middle Eastern versions allow to choose the language of the index title and cross-referencesbyright clickingin thetitlefieldin the Generate Indexwindow.

Indices

InDesign allows for the creation of a simple keyword index or a somewhat more detailed indexof the information in the text usingembedded indexingcodes which are instantiated as an index using a command in the Indexing palette. Unlike more sophisticatedprograms,InDesignisincapableofinsertingcharacterstyleinformationaspartofani ndex entry (e.g., when indexing book, journal or movie titles). Indices are limited to four levels (top level and three sub-levels). InDesign Middle Eastern versions allow the user to set various Sort Options for the indices according to the language dealtwith.

Therearenoprovisionsforimportingindexentriesaspartofan XMLfile.

Importing and exporting

InDesign Middle Eastern versions bring thecapabilityofopeningdirectlyand convertingQuarkXPressfiles,evenusingArabicXT,ArabicPhonyxorHebrew XPressWay fonts, retaining the layout and content. InDesign Middle Eastern versionscome with more than 50 import/export filters enabling to place many kinds of images and Roman texts: MicrosoftWord 97-98-2000 Import filter and Text Import filter. QuarkXPress data can be converted to InDesign with Markzware'sQ2ID. InDesign can also be used asa front end on top of database applications, such as CCI Europe's NewsGate software.

Reverselayout

InDesign Middle Eastern versions include a reverse layout feature to reverse the layout of a document, when converting a Left to Right document (Roman) to a Right to Left one (Arabic or Hebrew) or vice versa. It is alsohelpful when creating a multilingual document.

ComplexScriptrendering

InDesign supports Unicode character encoding and there is a special Middle East version supporting complex text layout for Arabic and Hebrew types of complex script. The underlying Arabic and Hebrew support is present in the Western-language editions of InDesign CS4, CS5, CS5.5 and CS6, but the user interface is not exposed, so it is difficult to access.

Illustrator

AdobeIllustratorisa vectorgraphicseditordevelopedandmarketedby AdobeSystems. The latest version, Illustrator CS6, is the sixteenth generation in theproduct line.

Compatibility

CompatibilitywithInkscape:Inkscape'snativeformatisSVG,whichissupportedbyAI,but the two implementations are not 100% compatible. Inkscape also exports to PS, EPS and PDF, formats which Illustrator can recognize.

Branding

Startingwith version 1.0,Adobe chose to license an image of Sandro Botticelli's"The Birthof Venus" from the Bettmann Archive and use the portion containing Venus' face as Illustrator's branding image. Warnock desired a Renaissance image to evoke his vision of Postscript as a new Renaissance in publishing, and Adobe employee Luanne Seymour Cohen,who wasresponsiblefortheearlymarketingmaterial,foundVenus'flowingtresses a perfect vehicle for demonstrating Illustrator's strength in tracing smooth curves over bitmap source images. Over the years the rendition of this image on Illustrator's splash screen and packaging became more stylized to reflect features added in each version.

The image of Venus was replaced (albeit still accessible via easter egg) in Illustrator CS (11.0) and CS2 (12.0) by a stylized flower to conform to the Creative Suite's nature imagery. In CS3, Adobe changed the suite branding once again, to simple colored blocks with two-letter abbreviations, resembling a periodic table of elements. Illustrator was represented by the letters Ai in white against an orange background (oranges and yellows were prominent color schemes in Illustrator branding going back as far as version 4.0). The CS4 icon is almost identical, except for a slight alteration to the font and the color whichisdarkgray.TheCS5iconisalsovirtuallythesame,exceptthatthistimethelogois like a box, along with all the other CS5 product logos, with the "Ai" bright yellow. CS6 changed itabit toabrown square with a yellowborder and yellowlettering.

Toolbox

Selectiontool

Themostcommonlyusedtool,whichselectstextandgraphicframesandallowsyouto workwith an object using its bounding box.

DirectSelection tool

Selects the contents of a frame, such as a placed graphic; allows you to work directly witheditableobjects,suchaspaths,rectangles,ortypethathasbeenconvertedtoatext

outline.Group Selection tool Selects a group of points all at once, such as the four pointsof rectangle.

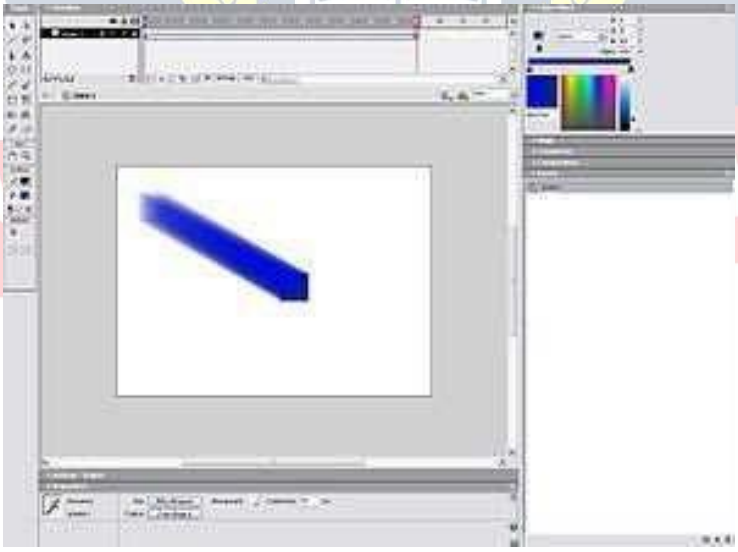
Magic Wand tool
Selects all objects in a document with the same or similar fill color, stroke weight, stroke color,opacity, or blending mode. By specifying the Color Range, or Tolerance, you can control whatthe Magic Wand tool selects.
Lassotool
Selects objects, anchor points, or path segments by being dragged around all or part of the object.
Pentool
Createsalinebetweentwoanchorpointsyoumake.Createsstraightlinesif yousimply click and release to make anchor points.
Add AnchorPointtool
Addsapointtoapath,whichisasimplewaytochangeanypath.Thishelpstoturnone shape into another
DeleteAnchorPointtool
Deletespointsfromapathwithoutcausingabreakinthepath.
ConvertDirectionPointtool
Changes the controlhandlesaroundananchor pointreshapingthesegmentscontrolled by thatanchor point.
Typetool
Createsresizableandmoveabletextframesinwhichyoucantype text.
Typeona Pathtool
←sedtotypeonanobject'spath.
Line tool
Createsstraightlines.
Ellipsetool
Createsellipse**shapes that hold text.**
Rectangle tool
Createsrectangleshapesthatholdcolorortext.
Polygontool
Createspolygonshapesthatholdcolorortext.
Paintbrushtool
Drawsapathandappliesabrushstrokesimultaneously.
Penciltool
Drawsopenandclosedpathsasifyouweredrawingwithapencilonpaper.Itismost useful forfast sketching or creating a hand-drawn look.
Smoothtool
Removesexcessanglesfromanexistingpathora sectionof apath.
Layers let you organize your work into distinct levels that can be edited and viewed as individual units. Every Illustrator CS6 document contains at least one layer. Creating multiple layers lets you easily control how your artwork is printed, displayed, and edited. You will use the Layers palette often while creating a document, so it is crucial to understand what it does and how to use it.

Flash Animation

A Flash animation or Flash cartoon is an animatedfilm which is created by Adobe Flash or similar animation software and often distributed in the .swf file format. The term Flash animation not only refers to the file format but to a certain kind of movement and visual style. With dozens of Flash animated television series, countless more Flash animated television commercials, and award-winning online shorts in circulation, Flash animation is enjoying a renaissance.

In the late 1990s, when for most Internet users, bandwidth was still at 56 kbit/s, many Flash animation artists employed limited animation or cutout animation when creating projectsintendedforwebdistribution.Thisallowedartiststoreleaseshortsand interactive experiences well under 1 MB, which could stream both audio and high-endanimation.

Flash is able to integrate bitmaps and other raster-based art, as well as video, though most Flash films are created using only vector-based drawings which often result in a somewhat clean graphic appearance. Some hallmarks of poorly produced Flash animation are jerky natural movements (seen in walk-cycles and gestures), auto-tweened character movements,lip-syncwithoutinterpolation,andabruptchangesfromfronttoprofileview.



Flash animations are typically distributed by way of the World Wide Web, in which case they are often referred to as Internet cartoons, online cartoons, or web toons. Web Flash animations may be interactive and are often created in a series. A Flash animation is distinguishedfrom aWebcomic,which is a comic strip distributedvia theWeb,rather than an animated cartoon.Flash animation isnow taught inschools throughoutthe UK and can be taken as a GCSE and A-level.

FlashAnimationdistribution

While the creation of animation using Flash can be easier and less expensive than traditionalanimationtechniques,theamountof time,money, andskillrequired toproduce aprojectusingthesoftwaredependsonthechosencontentandstyle. Internetdistribution is considerably easier and less expensive than television broadcasting, and websites such as New grounds provide free hosting. Many Flash animations are created by individual or amateur artists. Many Flash animations first distributed on the web became popular enough to be broadcast on television, particularly on such networks as MTV andG4.

Flash AnimationinProfessionalstudios

Flash animation production is enjoying considerable popularity in major animation studios aroundtheworld,asanimatorstakeadvantageofthesoftware'sabilityto organizealarge number of assets (such as characters, scenes, movements, and props) for later re-use. BecauseFlashfilesareinvectorfileformat,theycanbeusedtotransferanimationto 35 mm film without any compromise in image quality. This feature is used by several independentanimatorsworldwide, including Phil Nibbelink,who sawhis 77-minutefeature film Romeo & Juliet: Sealed with a Kiss released in theaters in 2006, and Nina Paley, who released Sita Sings the Blues in 2008. For Disneyland's 50 Magical Years film featuringLive action Steve Martin interacting with Donald Duck, the hand drawn animation of Donald Duck was cleaned up and colored in Flash. The Drawn Together Movie: The Movie!, a straight-to-DVD feature of the animated series Drawn Together, produced by Comedy Central and released in April 2010, discarded the series' traditional animation and used Flash animation instead.

CreatingFlashanimationfromother software

Thereareanumberofothersoftwarepackagesavailablethatcancreateoutputinthe.swf format.Amongtheseare GoAnimate, ToonBoom, XaraPhoto&GraphicDesigner, Vectorian Giotto, CelAction2D, Toufee, KoolMoves, Express Animator, AlligatorFlash Designer, Amara Web Animation software andAnime Studio. These front-ends often provide additional support for creating cartoons, especially with tools more tailored to traditionally trained animators, as well as additional rigging for characters, which can speed up character animation considerably. Additionally, there are programs available which translate 3Dinformation into 2D vectors.

Aboutthe Timeline

The Timeline organizes and controls a document's content over time in layers and frames. Like films, Flash Professional documents divide lengths of time into frames. Layers are like multiple film strips stacked on top of one another, each containing a different image that appears on the Stage. The major components of the Timeline are layers, frames, and the play head.

Layers in a document are listed in a column on the left side of the Timeline. Frames contained in each layer appear in a row to the right of the layer name. The Timeline header at the top of the Timeline indicates frame numbers. The playhead indicates the current frame displayed on the Stage. As a document plays, the playhead moves from left to right through the Timeline. The Timeline status displayed at the bottom of the Timeline indicates the selected frame number, the current frame rate, and the elapsed time to the current frame.

Note: Whenananimationisplayed,theactualframerateisdisplayed;thismaydifferfrom thedocument'sframeratesettingifthecomputercan'tcalculateanddisplaytheanimation quickly enough.

UserExperience

AdobeFlashPlayerexistsforavarietyofdesktopoperatingsystems, including Windows, Mac OS 9/X, Linux, Solaris, HP-UX, OS/2, QNX, BeOS,and IRIX.

One estimate is that 95% of PCs have it, while Adobe claims that 98 percent of U.S. web users and 99.3 percent of all Internet desktop users have installed their Flash Player, with 92 to 95% (depending on region) having the latest version Numbers vary depending on the detection scheme and research demographics.

As of May 2011, users of computers with the PowerPC G5 processor are not able to view Flash content from some sites (e.g. Facebook) that requires the latest upgrade of Adobe Flash player, which is not compatible with this processor architecture.

In February 2012, Adobe announced to discontinue its NPAPI Flash plugin for Linux from version 11.2. Newer versions will not be available from Adobe, but integrated with GoogleChrome, using its PPAPI instead. Security updates for the NPAPI version will still be provided for 5 years.

64-bit

Since version 11 of Adobe Flash Player, released October 4, 2011,64-bit and 32-bit builds for Windows, Mac and Linux have been released in sync. Previously, Adobe offered experimental 64-bit builds of Flash Player for Linux, from November 11, 2008 to June 15, 2010.

Availabilityonmobileoperatingsystems

AdobeFlashPlayerexistsforavarietyofmobileoperatingsystems, including Android (since version 2.2), Pocket PC/Windows CE, QNX (e.g. on BlackBerryPlayBook), Symbian, Palm OS, and webOS (since version 2.0).

In November 2011, however, Adobe announced the withdrawal of support for Flash on mobile devices. Adobe is reaffirming its commitment to "aggressively contribute" to HTML5, a platform with broader support and capabilities than Flash was ever able to deliver.

ThereisnoAdobeFlashPlayerforiOSdevices(iPhone,iPadandiPodTouch).The iPhone accounts for more than 60% of US and Canadian smartphone web traffic. This hurts Adobe's ability to market Flash as a ubiquitous mobile platform. However, Flash content can be made to run on iOS devices in a variety of ways:

- Flash content can be bundled inside an Adobe AIR app, which will then run on iOS devices. (Apple didn't allow this for a while, but they relaxed those restrictions in September 2010.)
- On March 8, 2011, Techradar reported that Adobe provides an experimental server side tool (Wallaby) to convert Flash programs(asfar aspossible) toHTML5 code, thus allowing iOS devices to display the content.
- If the content is Flash video being served by Adobe Flash Media Server 4.5, the server will translate and send the video as HTTP Dynamic Streaming or HTTP Live Streaming, both of which can be played by iOS devices.

The mobile version of Internet Explorer 8 for Windows Phone cannot play Flash content. The IE9 web browser on Microsoft Windows Phone 7.5 ('Mango') cannot play Flashcontent either.

On November 9, 2011, Adobe announced that it will no longer develop Flash for Mobile Platforms and is planning on developing new products with more open technologies and standards like HTML5.

Availabilityonother computingdevices

Adobe Flash Liteis a lightweightversion ofAdobe Flash Player intended for mobile phones and other portable electronic devices like Chumby and iRiver.

Ontheemerging single-board enthusiastmarket,assubstantiallypopularizedbythe Raspberry Pi, support from Adobe is lacking. However, Gnash have been ported and found useful.

AvailabilityincountriesunderU.S.economicsanctions

Downloading Flash is blocked in countries that are under U.S.economic sanctions (suchas Syria & Sudan). Users in these countries are blocked (by Adobe) from downloading Flash plug-ins for both Internet Explorer and Firefox browsers.

Accessibility

Using Flash tends to break conventions associated with normal HTML pages. Selecting text, scrolling,form control and right-clicking act differently than with a regular HTML webpage.Many such interfaceunexpectanciesare fixableby thedesigner. Usability expert Jakob Nielsen published an Alertbox in 2000 entitled,Flash: 99% Bad, which listed issues like these.Some problems have been at least partially fixed since Nielsen's complaints:

- Textsizecanbecontrolledusingfullpagezoom,foundinmanymodernbrowsers.
- It has been possible for authors to include alternative text in Flash since Flash Player 6. This accessibility feature is compatible only with certain screen readers and only under Windows.

Performance

Complicationstovideoacceleration

Any Flash player must be able to animate on top of video renderings, necessitating an intermediate color space conversion between video decoding and presentation, that a traditional multimedia player would leave for hardware to do at a later stage. This intermediate step splits the hardware acceleration pipeline in two. Depending on the hardware acceleration APIs exposed by the operating system, doing either part separately in hardware may be unsupported or complicated. For example, on Linux, native Xv video scaling can not be used because it is made to take video in the form that comes from the decoder – in YUVcolor space. However, Adobe Flash Player is able to make use

of VDPAUfor decoding(provided that the computer has an NvidiaGPU), makingthe Linux client partially hardware accelerated. The same challenge arises with native video capability in the browser, however the implementor may choose a different compromise between features and performance. For example, the KHTML layout engine does use Xv, andsocannotdrawontopofthevideo.Ratherthandisplayingitsvideocontrolsontopof the video, the video scaling is reduced to fit them below.

FlashPlayerbuild11.2.202.228forLinuxhasintroducedavideorenderingbugwithNvidia hardwareacceleration,resultingindiscolouredFlashvideos.This bugiscausedbythe red palette being rendered as blue. The problem has been confined to Flash Player and remains unfixed as of April 2012. A workaround has been implemented in VDPAU.

Empiricaltests

IntestsdonebyArsTechnicain2008and2009,AdobeFlashPlayerperformedbetter on Windows than Mac OS X and Linux with the same hardware. Performance has later improved for the latter two, on Mac OS X with Flash Player 10.1, and on Linux with Flash Player 11.

Flashblockinginweb browsers

SomewebsitesrelyheavilyonFlashandbecomeunusablewithoutFlashPlayer,orwith Flash blocked

Flash content is usually embedded using theobjector embedHTML element. A web browser that does not fully implement one of these elements displays the replacement text, if supplied by the web page. Often, a plugin is required for the browser to fully implement these elements, though some users cannot or will not installit.

Since Flash can be used to produce content (such as advertisements) that some usersfind obnoxious or take a large amount of bandwidth to download, some web browsers default to not play Flash content before the user clicks on it, e.g. Konqueror,K-Meleon.

Most current browsers have a feature to block plugins, playing one only when the user clicksit.Operaversionssince10.5 feature nativeFlashblocking.OperaTurborequires the user to click to play Flash content, and the browser also allows the user to enable this option permanently. Both Chrome and Firefoxhave an option to enable "click to play plugins". Equivalent "Flash blocker" extensions also exist for many popularbrowsers:

Firefox has Flashblock andNoScript, Internet Explorer has Foxie, which contains a number of features, one of them named Flashblock. WebKit-based browsers under Mac OS X,such as Apple's Safari, have ClickToFlash.

LayersandFrames

- Put**eachobject** tobeanimatedina**separate** layer!Yes,donotanimatetwoor more different objectsin one layer (except in frame-by-frameanimation)
- Tocreateanewlayerclickontheinsertlayericon(leftunderneaththelayers)
- Immediatelygivethislayera**meaningful name**.
- simplydouble-clickonthelayername
- Ifobjectsofonelayershouldbeinfront/inthebackofanotherlayeryoucangraba layer with the mouse and move it up or down.
- Whenyoueditobjectsinonelayer,it'sgoodpolicyto**lockalltheotherlayers**!

Simple Drawing

Therearetwomodes:mergemodeandobjectmode:

- Inmergemode(default)youdrawshapesandoverorunder-paintothershapes.
- Inobjectmodeyoudrawgraphicobjectsthatyoulatercaneditagain.

Mostofyourdrawingsshouldbeinobjectmode.Somakesurethatthisiconisonwhen you select a drawing tool:

- Onlyusemergemodewhenyoupaintlikeyouwouldwithrealpaint.
- YouthencanassembletheseshapeswithmenuModify->CombineObjects->Union.Theresultisagraphicobject.

Other commands:

- To select several objects: either hold down the SHIFT key, use a selection box or the Lasso tool.
- Tobreakapartadrawing(wellanythingactually):right-click;BreakApart.However, to edit the shape inside a graphic objects you don't need tobreak it apart. Youalso can double-click on the graphic shape. You should see something like "Drawing Object" in the Edit bar". Make sure to return to main timeline editing once you are done.

IntermediateDrawing

Object transformation

To**transform**anobjectorshapetherearesseveraltools,mostimportantly:

- The **Select tool**: Make sure all objects are de-selected, then move the cursor close to astroke ofanobjector a shape.Whenthecursor changes shapeyou candistort it.
- The **Free Transform Tool** has three different modes you can select with the options controls in the tools bar:
  - Changesize,rotate,skew(bydefaultyougetthis).Movethecursorcloseto lines or corners and watch the cursor change form.
  - Distorttool
  - Envelopetool
- The**Subselectiontool**letsyoufinetunethingsyoudidwiththeabovetools
- SubselectionTool,DistortToolandEnvelopetoolletyoueitherdragdistortion points (squares), turn or drag curve control handles(circles).

AdditionalstuffisintheModifymenu.AlsoseetheFlashCS3keyboard shortcuts.

- Make sure you only selected **one single object** (unless it's on purpose) before you start transforming.
- Flash changes the cursor when it switches to a given "transform mode" and it may display additional handles. There are lots and you should become familiar with these.

Ifyoufeellost,gobacktotheFlashobjecttransformtutorial.

Arrangingobjects

- Toalignobjects,workwiththealignpanel(menuWindow->AlignorCtrl-k).There are also shortcuts.
- Toassembleshapesintoagraphicobject,usetheModify->CombineObjects->Unionorturntheselectedshapesintoasymbol
- Tobreakapartanobject,useright-click->BreakApart.Ifyouwanttoproduce shapes, you may have to repeat this step.

FramebyFrameAnimation

Itisusefulforseveralthings,e.g.

- Todoprecisionwork,e.g.drawing15framesforjustanarmmovement;
- Tomakepulsatingobjectsthatyoucanmovearound;
- Toinsert/removeobjectsintotheanimation

Procedure

Framebyframeanimationsworkwithanything.Justdrawanykindofshapesorgraphic objects or whatever else in various frames. A frame with content is called a key frame.

Animation is based on the principle that keyframe contents shown to the user in rapid succession, by default 24 frames/second in Flash CS5/CS6 and 16 frames/second in Flash CS3.

Toaddnewkeyframesandcopyovercontentsfromthelastkeyframe:

- Inthetimeline(intherightlayer!)clickintothenewframe
- HitF6(orright-click->InsertKeyframe).Thiswillcopycontentsfromprevious keyframe to the new one.

Toaddnewkeyframesthatareempty:

- Inthetimeline(intherightlayer!)clickintothenewframe(ormovethereadplayhead)
- ThenhitF7(orright-click->InsertNewKeyframe)
- Thendrawsomethingneworcopy/pastefromanotherframe.

ADVANCEDIPLOMA IN COMPUTER APPLICATIONS 2nd YEAR (ADCA)

Topic 1: Language C
Topic2:LanguageC++
Topic 3: PHP& MySQL
Topic 4: Java Script
Topic 5: Visual Basic

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- ESTD 2020 -

PROGRAMMING LANGUAGE C

WhyweuseLanguage?

Weuselanguageduetofollowingreasons:

- Itstoresdata
- Howtointeractbetweeninputandoutput
- Theoperatorusestotransformandcombinedata.

What isC?

By1960languagescomeintoexistence.COBOLwasbeingusedforcommercial purposes, FORTRAN for Engineering and Scientific applications. An Internationalcommittee was setup to develop languages. This committee came out with a language called ALGOL60. ALGOL-60 never really became popular because it seemed too abstract, too general. To reduce the abstractness and generality a new language called Combined Programming Language (CPL) was developed at Cambridge University. CPL was an attempt to bring ALGOL 60 new version, but CPL turned out to be so big, having so many features, that it was hard to learn and difficult to implement. BCPL (Basic Combined Programming Language) developed by Martin Richards at Cambridge University aimed to solve this problem by bringing CPL down to its basic good features. But unfortunately it turned to be less powerful and too specific. Dennis Ritchie inherit the features of CPL and BCPL and made a language named C. C forms the basis for many advanced, highly powerful and effective programming languages. C is a programming language developed **atAT&T's Bell Laboratories of USA in 1972. It was designed and written by a man named** DennisRitchie.InthelateseventiesCbegantoreplacethemorefamiliarlanguagesof thattimelikePL/I,ALGOLetc.NoonepushesC.Cseemssopopular,becauseitis reliable, simple and easy to use. The concept of C derives its origin from a primitive form of C which was called Basic Combined Programming Language (BCPL) developed by **KenThompson ofBellLaboratorieswhich hereferredtoas'B'.Bynow itmightnotbe** difficulttoguessthatanameascrypticasC wasconferredtoitbecauseitwasconsidered to be amodified more adaptive **successor of "B". C's compactness and coherence is mainly due to the fact that it's a one man language.**

CBasics

Beforeweembarkonabrief tourof C'sbasicsyntaxandstructureweofferabrief history of C and consider the characteristics of the C language.

In the remainder of the Chapter we will look at the basic aspects ofC programs such as C program structure, the declaration of variables, data types and operators.We will assume knowledge of a high level language, such as PASCAL.

Itisourintentiontoprovideaquickguidethroughsimilar Cprinciplestomosthighlevel languages.Herethesyntaxmaybeslightlydifferentbuttheconceptsexactlythesame.

Cdoes haveafewsurprises:

- Many High level languages, like PASCAL, are highly disciplined and structured.
- However beware -- C is much more flexible and free-wheeling. This freedom gives C much more power that experienced users can employ. The above example below (mystery.c) illustrates how bad things could really get.

CharacteristicsofC

WebrieflylistsomeofC'scharacteristicsthatdefinethelanguageand alsohaveleadtoits popularity as a programming language. Naturally we will be studying many of these aspects throughout the course.

- Smallsize
- Extensiveuseoffunctioncalls
- Loosetyping--unlikePASCAL
- Structuredlanguage
- Lowlevel(BitWise)programmingreadilyavailable
- Pointerimplementation-extensiveuseofpointersformemory,array, structures and functions.

C has nowbecomeawidelyusedprofessional languagefor various reasons.

- Ithashigh-levelconstructs.
- Itcanhandlelow-levelactivities.
- Itproducesefficientprograms.
- Itcanbecompiledonavarietyofcomputers.

Featuresof C	
LowLevelLanguageSupport	ProgramPortability
PowerfulandFeatureRich	BitManipulation
HighLevelFeatures	ModularProgramming
EfficientUseof Pointers	

FeaturesofCProgrammingLanguage:

C Programming is widely used in Computer Technology, We can say that C Programmingis inspirationfordevelopmentof other languages.WecanuseC Programmingfor different purposes. Below are some of the Features of C Programming language -

1 .LowLevelFeatures:

1. C Programming provideslow level featuresthat are generally provided by the Lower level languages. C is Closely Related to Lower level Language such as **"Assembly Language".**
2. ItiseasiertowriteassemblylanguagecodesinCprogramming.

2 .Portability:

1. CProgramsareportablei.etheycanberunonanyCompilerwithLittleorno Modification
2. CompilerandPreprocessormakeitPossibleforCProgramtorunitonDifferentPC

3. Powerful

1. **ProvidesWideverityof'Data Types'**
2. **ProvidesWideverityof'Functions'**
3. ProvidesusefulControl&LoopControlStatements

4. Bit Manipulation

1. CProgramscanbemanipulatedusingbits.Wecanperformdifferentoperationsatbit level. We can manage memry representation at bit level.
2. ItprovideswideverityofbitmanipulationOperators.Wehavebitwiseoperatorsto manage Data at bit level.

5 .HighLevelFeatures:

1. It is more User friendly as compare to Previous languages. Previous languagessuchas BCPL,Pascal and other programming languages never provide such great featuresto manage data.
2. Previous languages have there **pros and cons** but C Programmingcollected all useful features of previous languages thus C become **more effective language**.

\

6 .Modular Programming

1. **Modular programming** isasoftwaredesigntechniquethatincreasestheextentto which software is composed of separate parts, called **modules**
2. CProgramConsistofDifferentModulesthatareintegratedtogethertoformcomplete program

7 .EfficientUseofPointers

1. Pointershasdirectaccesstomemory.
2. CSupportsefficientuseofpointer.

C Program Structure

ACprogrambasicallyhasthefollowingform:

- PreprocessorCommands
- Typedefinitions
- Functionprototypes--declarefunctiontypesandvariablespassedto function.
- Variables
- Functions

Wemusthaveamain()function.

C Keywords

Keywords are the set of predefined words whose functionality has been expressed to the compiler and whenever called upon they furnish their task with utmost comfort. The keywords cannot be used for any function other than what it is defined for, not even as variable names.

Variables

A program is made of data and instructions to manipulate those data. Note that data have to be stored somewhere, and thus will need some memory space in the RAM.

A variable is an entity that is used to store data. Without variables, there is no way (or actually NO PLACE) to store data. A variable has

- aname(morespecificallyasymbolicname)
- anassociatedphysicalmemoryspace(portionina RAM)
- adatatype
- avalue(dependsondata type)
- ascope

- a lifetime

r of integer with decimal points. Whenever an integer or a character is used in a program thecomputershouldbeabletoidentifywheretostoreitinthememory.
The basic data types are depicted in a tabular format to get a better understanding of the basics of C programming.

DataType	Description	Memory Requirement	Range	Format Specifier
Int	wholenumbers	2bytes	-32768to	%d,%i
long	--	4bytes	+32767	%ld
Char	Characters	1 Byte	0to255	%c,%s
Float	Numberswith	4 Bytes	1.0E-37to	%f
	Decimals		1.0E+37	
Double	Numberswith	8 Bytes	1.7E-308to	%lf

Constants

ANSICallowsyoutodeclare **constants**.Whenyoudeclareaconstantitisabitlikea variable declaration except the value cannot be changed.

Theconstkeywordistodeclareaconstant,asshownbelow:

```
intconsta=1;
constinta=2;
```

Note:

- Youcandeclaretheconstbeforeorafterthetype.Chooseoneanstickto it.
- Itisusualtoinitialiseaconstwithavalueasitcannotgetavalue**anyother way**.

The preprocessor #define is another more flexible (see Preprocessor Chapters) method to define **constants** in a program.You frequently see const declaration in function parameters. This says simply that the function is **not** going to change the value of the parameter.The following function definition used concepts we have not met (see chapters onfunctions, strings, pointers,andstandardlibraries)butforcompletenesof thissection it is is included here:

```
voidstrcpy(char*buffer,charconst*string)
```

The second argiment string is a C string that will not be altered by the string copying standard library function.

Operators inC :

Operators can briefly be defined as the tools used for solving various mathematical, conditional,relationalandlogicalproblems.Theoperatorsthatyouwillbedealingwithare arithmetic operators , unary operators, relational and logical operators . The item in between which the operators are placed are called operands.

Arithmeticoperators:

Arithmetic Operators can be considered the main point of all the operators. Arithmetic operators are tools that help us in computing various mathematical operations.

Operators	**Function Performed**
+	Addition
-	Subtraction
*	Multiplication
/	Division
%	(Modulus)Findsthe remainder
UnaryOperators:	

Therearetwotypesofunaryoperators:-

- **Theincrementoperator(denotesas'++')**
- **Thedecrementoperator(denotesas'--')**

When the increment operator is prefixed to a variable which holds an integer it increases the value of the number by one. Similarly the decrement operator decreases the value by one.

RelationalandLogicalOperators:

Operators	**Significance**
<	Lessthan
<=	Lessthanorequalto
>	Greaterthan
>=	Greaterthanorequalto
EqualityOperators	Significance
==	Equalto
!=	Notequalto
LogicalOperators	Significance
&&	And
||	Or
!	Not
Assignmentis=*I.E.*i=4;ch=`y';	

Increment++,**Decrement**--whicharemoreefficientthantheirlonghandequivalents,for example:--x++ isfasterthan x=x+1.

The ++ and -- operatorscan be eitherin post-fixed orpre-fixed.With pre-fixed the value is computed before the expression is evaluated whereas with post-fixed the value is computed after the expression is evaluated.

Comparison Operators

Totestforequalityis==

Awarning: Bewareofusing``="insteadof``==",suchaswritingaccidentally

```
if(i=j).....
```

This is a perfectly **LEGAL** C statement (syntactically speaking) which copies the value in "j" into "i", and delivers this value, which will then be interpreted as TRUE if j is non-zero. This is called **assignment by value** -- a key feature of C.

Notequalsis:!=

Otheroperators<(lessthan),>(graterthan),<=(lessthanorequals),>=(greaterthanor equals) are as usual.

StatementsinCLanguage

C needs some kind of managerial system which instructs the computer what function has to be performed at which time. The control statement act as a manager. You will amazed at the functions the different control statements handle. For example in a program you may have a statement in which a multiplication operation is to be performed and in the next an addition operation and after the next line there may be a statement which may want itself to be repeated 8 timesandanotherstatement maylike itself to be skipped and attended to at a later stage. All these conditions are managed by the control statements.

The sequence control structure is one of the basic uncomplicated control statements. The ideaisverysimple.Inthesequencecontrolinstructionsthestatementstobeexecutedare done so in a serial manner one after the other. The C compiler first executes the opening lineandthenmovesontothenextandsoon.Inaserialfashionandtheentireprogramis executed in this manner.

ConditionalStatement

C program executes program sequentially. Sometimes, a program requires checking of certain conditions in program execution. C provides various key condition statements to

check condition and execute statements according conditional criteria.These statements are called as '**Decision Making Statements**' or '**Conditional Statements**'.Followings are the different conditional statements used in C :

1. **If Statement**
2. **If-ElseStatement**
3. **NestedIf-ElseStatement**
4. **Switch Case**

IfStatement: Theifstatementcanbeusedtotestconditionssothatwecanaltertheflow of a program. Code:

```
#include<stdio.h>
  int main()
{
        int mark;
        charpass;
        scanf("%d",&mark);
        if (mark > 40)
                pass="y";
                return 0;
}
```

If-ElseStatement: Theifstatementfirsttestsifaconditionistrueandthenexecutesan instruction and the else is for when the result of the condition is false. Code:

```
#include<stdio.h>
int main()
{
        int mark;
        charpass;
        scanf("%d",&mark);
        if (mark > 40)
        {
                pass = "y";
                printf("Youpassed");
        }
        else
        {
                pass = "n";
                printf("Youfailed");
        }
        return0;
}
```

The Switch Statement: The switch statement is just like an if statement but it has many conditions and the commands for those conditions in only 1 statement. It is runs faster thananif statement.Inaswitchstatementyoufirstchoosethevariabletobetestedand

thenyougiveeachoftheconditionsandthecommandsfortheconditions.Youcanalso

putinadefaultifnoneoftheconditionsareequaltothevalueofthevariable.

For Loop, While Loop, Breakand Continue

Controlstructuresarebasicallyofthreetypes**–**

- **Sequence statements**
- **Iterativestatements**
- **Selectionstatements**

SequenceStatements: AlltheStateinaprogramexcepttheiterative&statements.They are generally the individual statements which performs the task of input, output, assignment declaration etc.

Iterative Statement are those repeated execution of a particular set of instructions desired number of times. These statements are generally called loops for their execution nature.

TypesofLoopingStatements:

Basically, the types of looping statements depends on the condition checking mode. Conditioncheckingcanbemadeintwo waysas:Beforeloopandafterloop.So,thereare 2(two) types of looping statements.

- **Entrycontrolledloop**
- **Exitcontrolledloop**

1. **Entrycontrolledloop:**

Insuchtypeofloop,thetestconditionischeckedfirstbeforetheloopisexecuted.

Somecommonexamplesofthisloopingstatementsare:

- **while loop**
- **forloop**

2. Exitcontrolledloop:

Insuchtypeofloop,theloopisexecutedfirst.Thenconditionischeckedafterblockof statements are executed. The loop executed atleat one time compulsarily.

Somecommonexampleofthisloopingstatementis:

- **do-whileloop**

In C language the iterative statements (loops) can be implemented in the three loops and they are

TheForLoop

Syntax-

for(initialization;condition; incrementation)
{
---------- bodyofloop ----------
}

ForLoopwillperformitsexecutionuntiltheconditionremainssatisfied.Ifthebodyoftheloop consists of more than one statement then these statements are made compound by placing the open and closed curly brackets around the body of the loop. For loop is a count loop. The initialization condition and increamentation may be done in the same statement. For loop will not execute at least once also if the condition is false at the first time itself.

TheWhileLoop

Syntax**–**

Initialization;
While(condition)
{
Body of loop;
Incrementation;
}

In this loop, initialisation, condition and incrementation is done in the three different statements. This loops is count as well as event loop. In case of while loops the body of theloopwillconsistofmorethanonestatementsbecauseeachtimeonestatementwillbe of incrementation. Hence the open and closed curly brackets are required.

Do-While LoopStatement:

ThethirdloopstatementavailableinCisdo-whilestatementsyntax:- Initialization;
Do
{
Body of loop;
Increamentation;
}while(condition)

AnintroductiontoArrays

The concept of arrays depends on other data types, which was meant to facilitate the storage of abundant amount of number and wasting an entire delivery of space in the memory.Itwouldbelikebuyingatwodozenbooksandultimately usingoneanddumping the restinthe garbage.Arrayscan be defined asa collection of similarelements. An array of elementscanbeformedonlyifalltheelementsareofoneparticulardatatypei.e.allof them are either integer or character or a floating point number, but there cannot exist an array which hosts an combination of these data types.

TypesofArrays

Thearrayaredividedintotwoparts:

- **SingleDimensionalArrays**
- **MultidimensionalArrays**

SingleDimensionalArrays:

The single dimensional arrays as the name suggested, handles only a single advance of similar elements. That is to say you can only have one row of elements and the size of a single dimensional array depends on the programmer. Basically the single dimensional arrays facilitate the accommodation of many similar elements in a single variable. The succeeding sections after which you will have a cloud less view of the single dimensional arrays.

MultiDimensionalArrays:

Multi dimensional array requires separate brackets for each subscript. One dimensional array has a pair of square brackets, a two dimensional array will have two pairs of square brackets, three dimensional array three pairs of square brackets and so on.

TwoDimensionalArray:

A two dimensional array can be visualized as an array below an array. Two dimensional array will have two pairs of square brackets.
Syntax:-datatypearrayname[statement1][statement2]
Thetwodimensionalarrayisoftenreferredtoasamatrix.Thestatementoneandtwoare the subscripts that the two dimensional array will hold. One will specify the row and expression, two will specify the column and they indicate the number of array elements associated with each subscript.

intA[4] [2];		
	Column0	Column1
RowNo0	4200	10
RowNo1	6500	20
RowNo2	7850	30
RowNo3	3450	40

ThustheelementinA[0][0]willbe1000andtheelementA[3][3]willbe40.Therestofthe numbers can be figured by having a look at the above table. In the memory the element areplacedinasequentialpatternsuchthattheelement[0][0]will befirstfollowedbythe elementin[0][1]followedby[1][0]andsoon.

Strings

A group of integers can be stores in an integer array. Similarly a group of characters can be stored in a character array. Character array are many a time also called strings. Most languages internallytreat strings as character arrays, but somehowconceal thisfactfrom

theprogrammer.Characterarraysorstringsareusedbyprogramminglanguagesto manipulate text such as words and sentences. A string constant is a one dimensional **array of characters terminated by a null (' \ 0 ') for example ,**

charname[ ] = {' I','T', 'T','C','O','M','P','U', 'T','E ','R','\0 '}

Eachcharacterinthearrayoccupiesonebyteofmemoryandthelastcharacterisalways' \ 0 '. What character is this ? It looks like two characters, but it is actually only onecharacter,eitherthe\ **indicating that what follows it is something special. ' \0 ' is called null character.Notethat'\0'and'0'arenotsame.ASCIIvalueof'\0'is0whereasASCIIvalueof ' 0 ' is 48 It shows a way a character array is stored in m**emory. The elements of **character array are stored in contiguous memory locations. The terminating null (' \ 0 ') is** important,becauseitistheonlywaythefunctionsthatworkwithastringcanknowwhere the stringcan knowwherethe stringends. As**tring not terminated by a ' \0 ' is really a** string, but merely a collection of characters.

WithCcompileralargesetofusefulstringhandlinglibraryfunctionsareprovided.

Function	Use
strlen	Findslengthofastring
strlwr	Convertsastringtolowercase
strupr	ConvertsaStringtoUpper Case
strcat	Appendsonestringattheendofanother
strcpy	CopiesaString into Another
strcmp	Comparestwostrings
strdup	DuplicatingaString
strrev	ReversingaString

Function

A function is a self contained block of a statements that perform a coherent task of some kind.EveryCprogramcanbethoughtof asacollectionof thesefunctions.Sometimesthe **interaction with this person is very simple sometimes it's complex.**

You have a task which is always performed exactly in the same way... say a servicing of **your motorbike.Whenyouwantittobedone,yougototheservicestationandsay"I's time, do it nowYou don't need to give instructions, because the mechanic knowshisjob. You don't need to** betold whenthejobisdone. Uassumethebike wouldbeservicedin the usual way, the mechanic does.

AsimpleCfunctionwhichoperatedinmuchthesamewayasthe,mechanics.Wewillbe lookingattwothingsaprogramthatcallsoractivatesthefunctionandthefunctionitself. void main ( )

```
{message();
        printf("\nThanksafterreturnoffirstfunction " ) ;
        getch ( ) ;
}
message()
{
 printf("\nWelcometothefirstfunctionprogram");
}
```

Note:

AnyCprogram containsatleastonefunctions.
Ifaprogramcontainsonlyonefunction,itmustbe**main()**.
In a C program if there are more than onefunctions present, then one (and only one)of thesefunctionsmustbemain(),becauseprogramexecutionalwaysbeginswith**main ( )** . Thereis no limitonthenumberof functionsthatmight bepresented in a Cprogram.
Eachfunctioninaprogramiscalledinthesequencespecifiedbythefunctioncallsin **main( )**.
Aftereachfunctionhasdoneitsthings,controlreturnsto**main ( )**.When**main ( )** runsout of function calls, the program ends.

PROGRAMMING Language C++

Introduction

object-orientation is introduced as a new programming concept which should help you in developinghighqualitysoftware.Somepeoplewillsaythatobject-orientationis``modern". Whenreadingannouncementsofnewproductseverythingseemstobe``object-oriented". ``Objects" are everywhere. In this section we will try to outline characteristics of object-orientation to allowyou to judge those object-oriented products.

Roughly speaking, we can distinguish the learning curve of someone who learns to program:

- Unstructuredprogramming,
- proceduralprogramming,
- modularprogrammingand
- object-orientedprogramming.

Unstructured Programming

Usually, people start learning programming by writing small and simple programs consisting only of one main program. Here ``main program" stands for a sequence of commands or *statements* which modify data which is *global* throughout the whole program.

Figure: Unstructuredprogramming.Themainprogramdirectlyoperatesonglobaldata.

Procedural Programming

With procedural programming you are able to combine returning sequences of statements into one single place. A *procedure call* is used to invoke the procedure. After the sequence is processed, flow of control proceeds right after the position where the call was made

ModularProgramming

Withmodularprogrammingproceduresofacommonfunctionalityaregroupedtogetherinto separate *modules*.Aprogram thereforenolongerconsistsof onlyone single part. It is now devided into several smaller parts which interact through procedure calls and which form the whole program.

Object-oriented programming solves some of the problems just mentioned. In contrast to the other techniques, we now have a web of interacting objects, each house-keeping its own state.

Figure: Object-orientedprogramming.Objectsoftheprograminteractbysending messages to each other.

AbstractDataTypes

Some authors describe object-oriented programming as programming *abstract data types* and their relationships. ADTs are used to define a new type from which instances can be created.ADTsprovidean abstractviewto describe propertiesof setsof entities,theiruse is independent from a particular programming language.

Class

A class is an actual representation of an ADT. It therefore provides implementation details for the data structure used and operations. We play with the ADT Integer and design our own class for it:

```
classInteger{
attributes:
  inti

methods:
  setValue(intn)
  IntegeraddValue(Integerj)
}
```

*Aclass istheimplementationofanabstractdatatype(ADT).It defines attributes and methods which implement the data structure and operations of the ADT, respectively.*Instances of classes are called *objects*. Consequently, classes define properties and behaviour of sets of objects.

Object

Objects are uniquely identifiable by a *name*. Therefore you could have two distinguishable objectswiththesamesetof values.Thisissimilarto``traditional''programminglanguages whereyoucouldhave,saytwointegers*i*and*j*bothofwhichequalto``2''.Pleasenoticethe use of ``i'' and ``j'' in the last sentence to name the two integers. We refer to the set of values at a particular time as the *state* of the object.

Definition (Object) An object is an instance of a class. It can be uniquely identified by its name and it defines a state which is represented by the values of its attributes at aparticular time. The ***behaviour****of an object is defined by the set of methods which can be applied on it.*

Message

Arunningprogramisapoolofobjectswhereobjectsarecreated,destroyedand *interacting*. Thisinteractingisbasedon *messages* whicharesentfromoneobject toanotheraskingthe recipient to apply a method on itself. A **message** is a request to an object to invoke one of its methods. A message therefore contains

- the**name**ofthemethodand
- the**arguments**ofthemethod.

Inheritance

With inheritance we are able to make use of the a-kind-of and is-a relationship. As described there, classes which are a-kind-of another class share properties of the latter. In our point and circle example, we can define a circle which *inherits from* point:

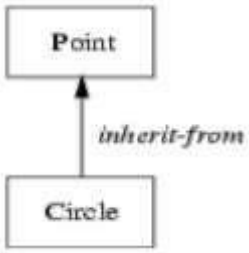
```
classCircleinheritsfromPoint{ attributes:
  intradius

methods:
  setRadius(int newRadius)
  getRadius()}
```

Class *Circle* inherits all data elements and methods from point. There is no need to define them twice:We just use already existing and well-known data and method definitions.

Definition (Inheritance) Inheritance is the mechanism which allows a class A to inherit properties of a class B. We say ``A inherits from B". Objects of class A thus have access to attributesandmethodsofclassBwithouttheneedtoredefinethem. Thefollowingdefinition defines two terms with which we are able to refer to participating classes when they use inheritance.

Definition (Superclass/Subclass) If class A inherits from class B, then B is called superclass of A. A is called subclass of B. Objects of a subclass can be used where objects of the corresponding superclass are expected. This is due to the fact that objects of the subclass share the same behaviour as objects of the superclass.

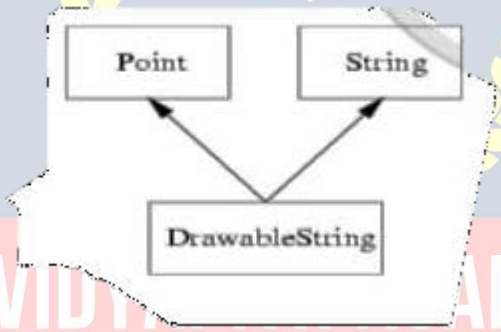
Figure: Asimpleinheritancegraph.



Multiple Inheritance

One important object-oriented mechanism is multiple inheritance. Multiple inheritance does **not** mean that multiple subclasses share the same superclass. It also does **not** mean that a subclass can inherit from a class which itself is a subclass of another class.Multiple inheritance means that one subclass can have *more than one* superclass. This enables the subclasstoinheritpropertiesofmorethanonesuperclassandto``merge"theirproperties.

Figure:DeriveadrawablestringwhichinheritspropertiesofPointandString.



Whatisinheritedfrom the base class?

Inprinciple,aderivedclassinheritseverymemberofabaseclassexcept:

- itsconstructoranditsdestructor
- its operator=() members
- itsfriends

Although the constructors and destructors of the base class are not inherited themselves,itsdefaultconstructor(i.e.,itsconstructorwithnoparameters)anditsdestructorare always called when a new object of a derived class is created or destroyed.

AbstractClasses

With inheritance we are able to force a subclass to offer the same properties like their superclasses.Consequently,objectsofasubclassbehavelikeobjectsoftheir superclasses. Sometimes it make sense to only describe the properties of a set of objects without knowing the actual behaviour beforehand.

StaticandDynamic Binding

In strongly typed programming languages you typically have to *declare* variables prior to their use. This also implies the variable's *definition*where the compiler reserves space for thevariable.*Definition (Static Binding) If the type T of a variable is explicitly associated with itsnameNbydeclaration,wesay,thatNisstaticallyboundtoT.Theassociationprocessis called static binding.*

Polymorphism

Polymorphismallowsanentity(forexample,variable,functionorobject)totakeavarietyof representations.Thereforewehavetodistinguishdifferenttypesofpolymorphismwhichwill be outlined here.

Data Types

Table:Built-intypes.

Type	Description	Size	Domain
Char	Signed Character byte.Charactersare enclosed in single quotes.	1	-128..127
Double	Doubleprecision numbers	8	Ca.10^{-308}..10^{308}
Int	Signedinteger	4	-2^{31}..2^{31}-1
Float	Floatingpoint number	4	Ca.10^{-38}..10^{38}
Long(int)	Signedlonginteger	4	-2^{31}..2^{31}-1
Longlong(int)	Signedverylong integer	8	0..2^{63}..2^{63}-1
Short(int)	Shortinteger	2	-2^{15}..2^{15}-1
Unsignedchar	Unsigned character byte	1	0..255
Unsigned(int)	Unsignedinteger	4	0..2^{32} -1
Unsignedlong (int)	Unsignedlong integer	4	0..2^{32}-1
Unsignedlonglong (int)	Unsignedverylong integer	8	0..2^{64}-1
Unsignedshort(int)	Unsignedshort integer	2	0..2^{16}-1

ExpressionsandOperators

Expressions are combined of both *terms* and *operators*. The first could be constansts, variables or expressions. From the latter, C offers all operators known from otherlanguages. However, it offers some operators which could be viewed as abbreviations to combinations of other operators. In C almost everything is an expression. For example, the assignmentstatement``="returnsthevalueofitsrighthandoperand.Asa``sideeffect"it also sets the value of the lefthand operand.

Statements

C defines all usual flow control statements. Statements are terminated by a semicolon ``;".

We can group multiple statements into blocks by enclosing them in curly brackets. Within each block, we can define new variables

Statement	Description
break;	Leave current block. Also used to leave case statement in switch.
continue;	Onlyusedinloopstocontinuewithnextloop immediately.
do Stmt while(expr);	ExecutestmtaslongasexprisTRUE.
for ([expr]; [expr]; [expr stmt	Thisisanabbreviationforawhileloopwhere thefirstexpristheinitialization,thefirstexpr istheconditionandthethirdexpristhestep.
gotolabel;	Jumpstopositionindicatedbylabel.The destinationislabelfollowedbycolon":".
if(expr)	IF-THEN-ELSEINC notation
return[expr];	Returnfromfunction.Iffunctionreturnsvoid return should be used without additional argument. Otherwise the value of expr is returned.
switch(expr){caseconst-erpr:stmts case const-expr: stms … [default:stmts] }	After evalution of expr its value is compared with the caseclauses.Execution continuesat the one that matches. BEWARE: You must use break to leave the switch if you don't want execution of following case clauses! If no case clause matches and a default clause areexecuted.
While(expr)stmt	RepeatstmtaslongasexprisTRUE.

Functions

AsCisaproceduralanguageitallowsthedefinitionof*functions*.Proceduresare ``simulated"byfunctionsreturning``novalue".Thisvalueisaspecialtypecalledvoid.

Functionsaredeclaredsimilartovariables,buttheyenclosetheirargumentsinparenthesis (even if

there are no arguments, the parenthesis must be specified):

```
intsum(intto);/*Declarationofsumwithoneargument*/
intbar();/*Declarationofbarwithnoarguments*/ void
foo(int ix, int jx);
            /*Declarationoffoowithtwoarguments*/
```

Pointersand Arrays

OneofthemostcommonproblemsinprogramminginC++istheunderstandingofpointers and arrays. In C (C++) both are highly related with some small but essential differences. You declare a pointer by putting an asterisk between the data type and the name of the variable or function:

```
char*strp;      /*strpis`pointertochar'*/
```

Youaccessthecontentofapointerbydereferencingitusingagaintheasterisk:

```
*strp='a';          /*Asinglecharacter*/
```

As in other languages, you must provide some space for the value to which the pointer points.A pointer to characters canbe used to pointto a sequenceof characters: the *string*. Strings in C are terminated by a special character NUL (0 or as char ',\0).

Constructor

With constructors we are able to initialize our objects at definition time as we have requested it for our singly linked list. We are now able to define a class *List* where the constructors take care of correctly initializing its objects.If we want to create a point from another point, hence, copying the properties of one object to a newly created one, we sometimes have to take care of the copy process. For example, consider the class *List*which allocates dynamically memory for its elements. If we want to create a second list which is a copy of the first, we must allocate memoryand copy the individual elements.

Destructors

Consider a class List. Elements of the list are dynamically appended and removed. The constructor helps us in creating an initial empty list. However, when we leave the scope of the definition of a list object, we must ensure that the allocated memory is released. We therefore define a special method called destructor which is called once for each object at its destruction time:

```
voidfoo(){
    Listalist;      //List::List()initializesto
                    //emptylist.
  ...               //add/removeelements
}                   //Destructorcall!
```

Destruction of objects take place when the object leaves its scope of definition or is explicitly destroyed. The latter happens, when we dynamically allocate an object and release it when it is no longer needed. Destructors are declared similar to constructors. Thus, theyalso use the nameprefixed bya tilde (~) of thedefiningclass.

Operators inC++

Operators can briefly be defined as the tools used for solving various mathematical, conditional,relationalandlogicalproblems.Theoperatorsthatyouwillbedealingwithare arithmetic operators , unary operators, relational and logical operators . The item in between which the operators are placed are called operands.

Arithmeticoperators:

Arithmetic Operators can be considered the main point of all the operators. Arithmetic operators are tools that help us in computing various mathematical operations.

Operators	Function Performed
+	Addition
-	Subtraction
*	Multiplication
/	Division
%	(Modulus)Findsthe remainder

UnaryOperators:

Therearetwotypesofunaryoperators:-

- **Theincrementoperator(denotesas'++')**
- **Thedecrementoperator(denotesas'--')**

When the increment operator is prefixed to a variable which holds an integer it increases the value of the number by one. Similarly the decrement operator decreases the value by one.

RelationalandLogicalOperators:

Operators	Significance
<	Lessthan
<=	Lessthanorequal to
>	Greaterthan
>=	Greaterthanorequalto
Equality Operators	Significance
==	Equalto
!=	Notequalto

LogicalOperaors	Significance
&&	And
||	Or
!	Not

Assignmentis=*i.e.*i=4;ch=`y';

Increment++,**Decrement**--whicharemoreefficientthantheirlonghandequivalents,for example:--x++ isfasterthan x=x+1.

The ++ and -- operatorscanbeeitherinpost-fixedorpre-fixed.Withpre-fixedthevalueis computed before the expression is evaluated whereas with post-fixed the value is computed after the expression is evaluated.

Comparison

OperatorsTotestfor

equality is ==

Awarning: Bewareofusing``="insteadof``==",suchaswritingaccidentally

```
if(i=j).....
```

This is a perfectly **LEGAL** C statement (syntactically speaking) which copies the value in "j" into "i", and delivers this value, which will then be interpreted as TRUE if j is non-zero. This is called **assignment by value** -- a key feature of C.

Notequalsis:!=

Otheroperators<(lessthan),>(graterthan),<=(lessthanorequals),>=(greaterthanor equals) are as usual.

Statements in C Language

C needs some kind of managerial system which instructs the computer what function has to be performed at which time. The control statement act as a manager. You will amazed at the functions the different control statements handle. For example in a program you may have a statement in which a multiplication operation is to be performed and in the next an addition operation and after the next line there may be a statement which may want itself to be repeated 8 timesandanotherstatement maylike itself to be skipped and attended to at a later stage. All these conditions are managed by the control statements.

.ConditionalStatement

C program executes program sequentially. Sometimes, a program requires checking of certain conditions in program execution. C provides various key condition statements to

check condition and execute statements according conditional criteria.These statements are called as '**Decision Making Statements**' or '**Conditional Statements**'.Followings are the different conditional statements used in C :

5. **If Statement**
6. **If-ElseStatement**
7. **NestedIf-ElseStatement**
8. **Switch Case**

IfStatement: Theifstatementcanbeusedtotestconditionssothatwecanaltertheflow of a program. Code:

```
#include<stdio.h>i
  nt main()
{
        int mark;
        charpass;
        scanf("%d",&mark);
        if (mark > 40)
                pass="y";
                return 0;
}
```

If-ElseStatement: Theifstatementfirsttestsifaconditionistrueandthenexecutesan instruction and the else is for when the result of the condition is false. Code:

```
#include<stdio.h>in
t main() {
        intmark;
        char pass;
        scanf("%d",&mark);
        if (mark > 40)
        {
                pass = "y";
                printf("Youpassed");
        }
        else
        {
                pass = "n";
                printf("Youfailed");
        }
        return0;
}
```

The Switch Statement: The switch statement is just like an if statement but it has many conditions and the commands for those conditions in only 1 statement. It is runs faster thananif statement.Inaswitchstatementyoufirstchoosethevariabletobetestedand

thenyougiveeachoftheconditionsandthecommandsfortheconditions.Youcanalso putinadefaultifnoneof theconditionsareequaltothevalueof thevariable.

For Loop, While Loop, Breakand Continue

Controlstructuresarebasicallyofthreetypes**–**

- **Sequence statements**
- **Iterativestatements**
- **Selectionstatements**

Sequence Statements : All the State in a program except the iterative & statements. They are generally the individual statements which performs the task of input, output, assignment declaration etc.

Iterative Statement arethoserepeatedexecutionofaparticularsetofinstructionsdesired number of times. These statements are generally called loops for their execution nature.

TypesofLoopingStatements:

Basically, the types of looping statements depends on the condition checking mode. Conditioncheckingcanbemadeintwo waysas:Beforeloopandafterloop.So,thereare 2(two) types of looping statements.

- **Entrycontrolledloop**
- **Exitcontrolledloop**

2. **Entrycontrolledloop:**

Insuchtypeofloop,thetestconditionischeckedfirstbeforetheloopisexecuted. Some

common examples of this looping statements are :

- **while loop**
- **forloop**

2. Exitcontrolledloop:

Insuchtypeofloop,theloopisexecutedfirst.Thenconditionischeckedafterblockof statements are executed. The loop executed atleat one time compulsarily.

Somecommonexampleofthisloopingstatementis:

- **do-whileloop**

In C language the iterative statements (loops) can be implemented in the three loops and they are

The For Loop

Syntax-

for(initialization;condition; incrementation)
{
---------- bodyofloop -------
}

ForLoopwillperformitsexecutionuntiltheconditionremainssatisfied.Ifthebodyof the loop consists of more than one statement then these statements are made compound by placing the open and closed curly brackets around the body of the loop. For loop is a count loop. The initialization condition and incrementation may be done in the same statement. For loop will not execute at least once also if the condition is false at the first time itself.

TheWhile Loop

Syntax–

Initialization;
While(condition)
{
Body of loop;
Incrementation;
}

In this loop, initialisation, condition and incrementation is done in the three different statements. This loops is count as well as event loop. In case of while loops the body of theloopwillconsistofmorethanonestatementsbecauseeachtimeonestatementwillbe of incrementation. Hence the open and closed curly brackets are required.

Do-While LoopStatement:

ThethirdloopstatementavailableinCisdo-whilestatementsyntax:- Initialization;
Do
{
Body of loop;
Increamentation;
}while(condition)

PHP &MySQL

PHPstandsforHypertextPreprocessor.PHPisapowerfulserver-sidescriptinglanguage for creating
dynamicandinteractivewebsites.PHPisthewidelyused,free,andefficientalternativeto **competitors such as Microsoft's ASP. PHP is perfectlysuited for Web development and** canbeembeddeddirectlyintotheHTMLcode.ThePHPsyntaxisverysimilartoPerland
C. PHP is often used together with Apache (web server) on various operating systems. A PHP filemay containtext,HTMLtagsandscripts.ScriptsinaPHPfileare executedon the server.

PHP +MySQL

PHPstandsfor**PHP:HypertextPreprocessor**
PHPisaserver-sidescriptinglanguage,likeASP
PHPsupportsmanydatabases(MySQL,Oracle,Sybase,SQL,GenericODBC, etc.)
PHPisanopensourcesoftware (OSS)&freetodownloadand use.
PHPfileshaveafileextensionof"*.php".
MySQLisasmalldatabaseserver&idealforsmall and mediumapplications.

BasicPHPSyntax

Writing PH**P on your computer is actually very simple. You don't need any special** software, except for a text editor (like Notepad inWindows). A PHP scripting block always starts with <?php and ends with ?>. A PHP scripting block can be placed anywhere in the document.

```
<?phpecho "HelloWorld";?>
```

Each code line in PHP must end with a semicolon. The semicolon is a separator andis usedtodifferentiateonesetofinstructionsfromanother.Therearetwobasicstatementsto outputtextwithPHP:echoandprint.Intheexampleabovewehaveusedtheecho **statementtooutputthetext"HelloWorld".**

Comments in PHP

In PHP, we use // to make a single-line comment or /* and */ to make a large comment block.

```
<?php//Thisisacomment

/*Thisisacommentblock*/?>
```

PHP Variables : (Variable: A quantity which may vary during program execution is called a variable.)Variables areused for storing values, like text strings, numbersor arrays.Whena variable is declared, it can be used over and over again in your script.All variables in PHP start with a $ sign symbol.

```
<?php
$age=12;
```

```
echo $age;
?>
```

PHPStringVariables: Astringvariableisusedtostoreandmanipulatetext.String variablesareusedforvaluesthatcontainscharacters.Afterwecreateastringwecan manipulate it. A stringcan be used directlyin a function or it can be stored in a **variable.Below, the PHP script assigns the text "Hello World" to a string variable called** $txt:

```
<?php
$var="HelloWorld";
echo $var;
?>
```

Toconcatenate(forspace)twoormorevariablestogether,usethedot(.)operator:

```
<?php
$var1="HelloWorld";
$var2="1234";
echo$var1.""".$var2;
?>
```

Thes**trlen()function: Thestrlen()functionis usedtoreturnthelengthofa string.Let's** find the length of a string:

```
<?php
echostrlen("Helloworld!");
```

Theoutputofthe codeabovewillbe:12

```
?>
```

The strpos() function : The strpos()function is used to search for character within a string.Ifamatchisfound,thisfunctionwillreturnthepositionofthefirstmatch.Ifnomatch **isfound,itwillreturnFALSE.Let's seeifwe canfind thestring"world"inour string:**

```
<?php echo strpos("Hello world!","world"); ?>
```

Theoutputofthecode above will be: 6

Thepositionofthestring"world"inourstringisposition6.Thereasonthatitis6(and not7),isthatthefirstpositioninthestringis0,andnot1.

Conditional Statements : Theif,elseifandelsestatementsinPHPareusedtoperform different actionsbasedondifferentconditions.When,youwanttoperformdifferentactionsfor different decisions,youcanuseconditionalstatementsinyourcode.

ifstatement-usethisstatementifyouwanttoexecuteasetofcodewhenaconditionis true and another if thecondition is not true.

Syntax:if(condition)codetobeexecutedifconditionistrue;

```
<?php
$d=date("D");
if ($d=="Fri")
echo"Haveaniceweekend!";
?>
```

ifelsestatement-isusedwiththeifelsestatementtoexecuteasetofcodeif**one** of several condition are true

TheIf...else...if...elseStatement-Ifyouwanttoexecutesomecodeifaconditionistrue and another code if a condition is false, use the if…….else statement.

if...else: Usetheif….elsestatementtoexecutesomecodeifaconditionistrueand anothercodeifaconditionisfalse.

Syntax : if (condition) code to be executed if condition is true;else code to be executed if condition is false;

The following example will output "Have a nice weekend!" if the current day is Friday, otherwise it w**ill output "Have a nice day!":**

```
<?php
$d=date("D");
if ($d=="Fri")
echo"Haveaniceweekend!";
else
echo"Haveaniceday!";
?>
```

TheElseIfStatement:**If youwanttoexecutesomecodeifoneofseveral conditions are true use the elseif statement**

Syntax:if(condition)codetobeexecutedifconditionistrue;elseif(condition)codetobe executed if condition is true;else code to be executed if condition is false.The following **example will output "Have a nice weekend!" if the current day is Friday, and "Have a nice Sunday!" if the current day is Sunday. Otherwise it will output "Have a nice day!":**

```
<?php
$d=date("D");
if ($d=="Fri")
echo"Haveaniceweekend!"; elseif
($d=="Sun")
echo"HaveaniceSunday!";
else
echo"Haveaniceday!";
?>
```

The Switch Statement : TheSwitchstatementinPHPisusedtoperformone ofseveral different actionsbasedononeofseveraldifferentconditions.Ifyouwanttoselectoneofmany blocks of codetobeexecuted,usetheSwitchstatement.Theswitchstatementisusedtoavoidlong blocks of if..elseif..else code.

```
Syntax:switch(expression)
{
caselabel1:
codetobeexecutedifexpression=label1; break;
caselabel2:
codetobeexecutedifexpression=label2; break;
default:
codetobeexecutedifexpressionisdifferentfrombothlabel1and label2; }
```

What isan array?

Anarraystoresmultiplevaluesinonesinglevariable.

Avariableisastorageareaholdinganumberortext.Theproblemis,avariablewillhold only one value.
An arrayisa specialvariable, which canstore multiple valuesinone single variable. Ifyouhavealistofitems(alistofcarnames,forexample),storingthecarsinsingle variables could look like this:

$cars1=”Maruti”;
$cars2=”Zen”;
$cars3=”BMW”;

However, what if you want to loop through the cars and find a specific one? And what if you had not 3 cars, but 300?Each element in the array has its own index so that it can be easily accessed.In PHP, there are three kind of arrays:

- Numericarray-Anarraywithanumericindex
- Associativearray-AnarraywhereeachIDkeyisassociatedwitha value
- Multidimensionalarray-Anarraycontainingoneormorearrays

Numeric Arrays : A numeric array stores each array element with a numeric index.There are two methods to create a numeric array.In the following example the index are automatically assigned (the index starts at 0):

$cars=array(“Maruti”,”Zen”,”BMW”,”Toyota”);

Looping : Looping statements in PHP are used to execute the same block of code a specifiednumberoftimes.Veryoftenwhenyouwritecode,youwantthesameblockof codetorunanumberoftimes.Youcanuseloopingstatementsinyourcodetoperform this.InPHP we have thefollowingloopingstatements: **while** - loopsthrough ablockof code if and as long as a specified condition is true
do...while- loops through a block of code once, and then repeats the loop as long as aspecial condition is true
for -loopsthroughablockofcodeaspecifiednumberoftimes
foreach-loopsthroughablockofcodeforeachelementinanarray
ThewhileStatement: Thewhilestatementwillexecuteablockofcode**if andas long as** a
conditionis true.

Thedo...whilestatementwillexecuteablockofcode**atleastonce**-itthenwillrepeat the loop **as long as** a condition is true.

Syntax:do

{
code tobeexecuted;
}
while (condition);

Thefollowingexamplewillincrementthevalueofiatleastonce,anditwillcontinue incrementing the variable i as long as it has a value of less than 5:

<?php
$i=0;
do

```
{
$i++;
echo“Thenumberis“.$i.“<br/>”;
}
while ($i<5);
?>
```

The for statement isusedwhenyouknowhowmanytimesyouwanttoexecutea statement or a list of statements.

Syntax:for(initialization;condition;increment)

```
{
code tobeexecuted;
}
Increment1 to 10
<?php
$var=1;
do
{
echo$var."";
$var++;}
while($var<=10);
?>
```

Note: The for statement has three parameters. The first parameter initializes variables, the second parameter holds the condition, and the third parameter contains the increments required to implement the loop. If more than one variable is included in the initialization or the increment parameter, they should be separated by commas.

MySQL

The MySQL development project has made its source codeavailable under the terms of the GNU General Public License,as well as under a variety of proprietaryagreements.

MySQL was owned and sponsored by a singlefor-profitfirm, the Swedishcompany MySQL AB,now owned by Oracle Corporation.

MySQL is a popular choice of database for use in web applications, and is a central component of the widely usedLAMPopen source web application software stack (and other 'AMP'stacks). LAMP is an acronym for "Linux,Apache, MySQL, Perl/PHP/Python."Free-software-open source projects that require a full-featured database management system often use MySQL.

Interfaces

MySQL is a relational database management system(RDBMS), and ships with no GUI tools to administer MySQL databases or manage data contained within the databases. Users may use the included command linetools, or use MySQL "front-ends", desktop software and web applications that create and manage MySQL databases, build database structures, back up data, inspect status, and work with data records. The official set of MySQL front-end tools, MySQL Workbenchis actively developed by Oracle, and is freely available for use.

Graphical

The official MySQL Workbenchis a free integrated environment developed by MySQL AB, that enables users to graphically administer MySQL databases and visually designdatabase structures. MySQL Workbench replaces the previous package of software,MySQL GUI Tools.Similar to other third-party packages, but still considered the authoritative MySQL front end, MySQL Workbench lets users manage database design & modeling, SQL development (replacing MySQL Query Browser) and Database administration (replacing MySQL Administrator).

MySQL Workbench is available in two editions, the regular free and opensource Community Edition which may be downloaded from the MySQL website, and the proprietary Standard Edition which extends and improves the feature set of the Community Edition.

Command line

MySQL ships with many command linetools, from which the main interface is 'mysql' client.Third-partieshavealsodevelopedtoolstomanage, optimize,monitorandbackupa MySQL server, some listed below. All these tools work on *NIX type operating systems, and some of them also on Windows.

- Maatkit - a cross-platform toolkit for MySQL, PostgreSQLand Memcached, developed in Perl.Maatkit can be used to prove replication is working correctly, fix corrupteddata,automaterepetitivetasks,andspeedupservers.Maatkitisincluded withseveralGNU/LinuxdistributionssuchasCentOSandDebianandpackages are available for Fedoraand Ubuntuas well. As of late 2011, Maatkit is no longer developed, but Perconahas continued development under the Percona Toolkit brand.
- XtraBackup - Open Source MySQL hot backup software. Some notable features include hot, non-locking backups for InnoDB storage, incremental backups, streaming, parallel-compressed backups, throttling based on the number of IO operations per second, etc.
- MySQL::Replication - a replacement for MySQL's built-in replication, developed in Perl.MySQL::Replicationcan be used to createa peer-to-peer, multi-master MySQL replication network.

Programming

MySQL works on manysystem platforms, includingAIX,BSDi,FreeBSD,HP-UX,eComStation,i5/OS,IRIX,Linux,Mac OS X,Microsoft Windows,NetBSD,NovellNetWare,OpenBSD,OpenSolaris,OS/2Warp, QNX,Solaris,Symbian, SunOS, SCO OpenServer, SCO UnixWare,Sanosand Tru64.A port of MySQL toOpenVMSalso exists.MySQL is written in C and C++.Its SQL parser is written in yacc,but it uses a home-brewedlexical analyzer.Manyprogramming languageswith language-specificAPIsincludelibrariesforaccessingMySQLdatabases.TheseincludeMySQL Connector/NetforintegrationwithMicrosoft'sVisualStudio(languagessuchasC#andVBaremost commonlyused)andtheJDBCdriverforJava.Inaddition,

an ODBCinterface called MyODBCallows additional programming languages that support the ODBC interface to communicate with a MySQL database, such as ASPor ColdFusion. The HTSQL- URL-based query method also ships with a MySQL adapter, allowing direct interaction between a MySQL database and any web client via structured URLs.

Features

Theyhaveacommoncodebaseandincludethefollowingfeatures:

- AbroadsubsetofANSISQL99,aswellasextensions
- Cross-platformsupport
- Stored procedures,◆♦☥■♌ a procedural language that closely adheres to SQL/PSM
- TriggersCurs
- ors
- Updatable
- ViewsInformationschema
- Strict mode (ensures MySQL does not truncate or otherwise modify data to conform to an underlyingdata type, when an incompatible value is inserted into that type)
- X/OpenXAdistributedtransactionprocessing(DTP)support;twophasecommit as part of this, using Oracle's InnoDBengine
- Independent storage engines(MyISAMfor read speed, InnoDBfor transactions andreferentialintegrity,MySQLArchiveforstoringhistoricaldatainlittlespace)
- Transactionswith the InnoDBand NDB Cluster storage engines; savepoints with InnoDB

- SSL support
- Querycaching
- Sub-SELECTs(i.e.nestedSELECTs)
- Replication support (i.e. Master-Master Replication & Master-Slave Replication) with one master per slave, many slaves per master. Multi-master replicationis

providedin MySQLCluster,andmulti-mastersupportcanbeaddedto unclustered configurations using Galera Cluster.

- Full-textindexingandsearchingusingMyISAM engine
- Embeddeddatabaselibrary
- Unicode support (however prior to 5.5.3 UTF-8and UCS-2encoded strings are limited to the BMP,in 5.5.3 and later use utf8mb4forfull unicode support)
- ACID compliance when using transaction capable storage engines (InnoDB and Cluster)
- Partitionedtableswithpruningofpartitionsinoptimizer
- Shared-nothing clustering through MySQL Cluster
- Hotbackup(viamysqlhotcopy)undercertainconditions
- Multiple storage engines, allowing one to choose the one that is most effective for each table in the application (in MySQL 5.0, storage engines must be compiled in; in MySQL 5.1, storage engines can be dynamically loaded at runtime):
- Native storage engines (MyISAM, Falcon,Merge, Memory (heap), Federated, Archive,CSV,Blackhole,Cluster,EXAMPLE,Aria,andInnoDB,whichwas made the default as of 5.5)
- Partner-developed storage engines (solidDB,NitroEDB, ScaleDB, TokuDB, Infobright(formerly Brighthouse), Kickfire, XtraDB, IBM DB2). InnoDB used to be a partner-developed storage engine, but with recent acquisitions,Oraclenow ownsbothMySQLcoreandInnoDB.
- Community-developedstorage engines (memcache engine,httpd, PBXT, Revision Engine)
- Customstorageengines
- Commit grouping, gathering multiple transactions from multiple connections together to increase the number of commits per second. (PostgreSQL has an advanced form of this functionality)

The developers release monthly versions of the MySQL Server. The sources can be obtained from MySQL's website or from MySQL's Bazaarrepository, both under the GPL license.

Limitations

LikeotherSQLdatabases,MySQLdoes notcurrently comply withthe full SQLstandard for some of the implemented functionality, including foreign key references when using some storage engines other than the 'standard' InnoDB.

Triggersarecurrentlylimitedtooneperaction/timing,i.e.maximumoneafterinsertand one

before insert on the same table. There are no triggers on views.

MySQL, like most other transactionalrelational databases, is strongly limited by hard disk performance.Thisisespeciallytrue intermsof write latency.Giventhe recentappearance of very affordable consumer grade SATA interface Solid-state drivesthat offer zero mechanicallatency,afivefoldspeedupoverevenaneightdriveRAIDarraycanbehadfor a smaller investment.

Deployment

MySQL can be built and installed manually from source code, but this can be tedious so it is more commonly installed from a binary package unless special customizations are required. OnmostLinuxdistributions the package management systemcandownloadand install MySQL with minimal effort, though further configuration is often required to adjust security and optimization settings.

Though MySQL began as a low-end alternative to more powerful proprietary databases, it hasgraduallyevolved tosupporthigher-scaleneedsaswell.Itisstillmostcommonlyused in small to medium scale single-server deployments, either as a component in a LAMP- based web application or as a standalone database server. Much of MySQL's appeal originates in its relative simplicity and ease of use, which is enabled by an ecosystem of open source tools such asphpMyAdmin.In the medium range, MySQL can be scaled by deploying it on more powerful hardware, such as a multi-processor server with gigabytes of memory.

Therearehoweverlimitstohowfarperformancecanscaleonasingleserver,soonlarger scales, multi-server MySQL deployments are required to provide improved performance and reliability. A typical high-end configuration can include a powerful master database whichhandlesdatawriteoperationsandisreplicatedtomultipleslavesthathandleallread operations. The master server synchronizes continually with its slaves so in the event of failure a slave can bepromoted to become the newmaster,minimizing downtime. Further improvements in performance can be achieved by caching the results from database queries in memory using memcached,or breaking down a database into smaller chunks called shardswhich can be spread across a number of distributed server clusters.

Java Script

JavaScript is the most popular scripting language on the internet, and works in all major browsers,
suchasInternetExplorer,Firefox,Chrome,Opera,and Safari.

WhatisJavaScript?

JavaScriptisascriptinglanguageorisalightweightprogramminglanguage JavaScript was designed to add interactivity to HTML pages

JavaScriptisusuallyembeddeddirectlyintoHTMLpages

JavaScriptisaninterpretedlanguage(meansthatscriptsexecutewithoutpreliminary compilation)

Everyonecan use JavaScriptwithout purchasing alicense

AreJavaandJavaScriptthesame?

NO! Java and JavaScript are two completely different languages in both concept and design! Java (developed by Sun Microsystems) is a powerful and much more complex programming language - in the same category as C and C++.

How doesitWork?

JavaScript gives HTML designers a programming tool : HTML authors are normally notprogrammers,butsinceJavaScriptisaverylightprogramminglanguagewithavery **simple syntax, almost anyone can start putting small "pieces" of code into their HTML** documents.

JavaScript can putdynamic text intoan HTML page : AJavaScriptstatementlikethis: **document. write("<h1>" + name + "</h1>") can write a variable text into the display of an** HTMLpage,justlikethestaticHTMLtext:<h1>Hello</h1>does.

JavaScript can react to events : A JavaScript can be set to execute when something happens, like when a page has finished loading or when a user clicks on an HTML element.

JavaScript can read and write HTML elements : A JavaScript can readanHTML element and change the content of an HTML element.

JavaScript can be used to validate data : JavaScript can be used to validate data in a form before it is submitted to a server. This function is particularly well suited to save the server from extra processing.

JavaScriptEvents:Eventsareactionsthatcanbedetectedby JavaScript.

Examplesofevents:

Amouseclick
A web page or an image
loadingMousingoverahotspotonthewebpa
ge
SelectinganinputfieldinanHTMLform &SubmittinganHTML form A
keystroke

Note: Eventsarenormallyusedincombinationwithfunctions,andthefunctionwillnotbe executed before the event occurs!

JavaScriptisCaseSensitive:A functionnamed"myfunction"isnotthesameas "myFunction".

Therefore watch your capitalization when you create or call variables, objects and functions.

Symbols:Opensymbols,like**({["',musthave amatchingclosing symbol,like'"]})**.

ToinsertascriptinanHTMLdocument,usethe<script>tag.Usethetypeattributeto define the scripting language.

<scripttype="text/javascript">

InJavaScriptthecommandforwritingsometextonapageisdocument.write:

document.write("HelloWorld!")

Thescriptends:</script>

HowtoPutaJavaScriptIntoanHTMLDocument

<html><body>

<script type="text/javascript">

document.write("HelloWorld!")

</script>

</body></html>

Write textwithformatting

Howtoformatthetexton yourpagewithHTMLtags

<html><body>

<scripttype="text/javascript">

document.write(“<h1>HelloWorld!</h1>”)

</script>

</body></html>

Ending StatementswithaSemicolon?

With the traditional programming languages C++ and Java, each code statement has to end with a semicolon.

Scripts in the head section: Scripts to be executed when they are called, or when an eventistriggered,gointheheadsection.Whenyouplaceascriptintheheadsection,you willensurethat the script isloadedbeforeanyoneusesit. <html>

<head>

<scripttype=”text/javascript”>

functionmessage()

{

alert(“Thisalertboxwascalledwiththeonload event”)

}

</script>

</head>

<bodyonload=”message()”>

</body>

</html>

Scripts in the body section: Scripts to be executed when the page loads go in the body section.When you place a script in the body section it generates the content of the page.

<html>

<head>

</head>

<body>

<scripttype=”text/javascript”>
document.write(“Thismessageiswrittenwhenthepageloads”)
</script>
</body>
</html>
Scripts inboth the bodyand the head section: Youcanplaceanunlimitednumberof scriptsinyourdocument,soyoucanhavescriptsinboththebodyandtheheadsection.
<html>
<head>
<scripttype=”text/javascript”>
/*somestatements*/document.write(“ThismessageiswritteninHead Section”)
</script>
</head>
<body>
<scripttype=”text/javascript”>
/*somestatement**s*/document.write(“ThismessageiswritteninBody Section”)** </script>
</body>
How toRunanExternalJavaScript: Sometimesyoumightwanttorunthesamescript on several pages, without writing the script on each and everypage.To simplify this you canwriteascriptinanexternalfile,andsaveitwitha**name.js**fileextension,likethis:
document.write(“Thisscriptisexternal”)Savetheexternalfileasabc.js
The filename can not contain more than 8 letters
Theexternalscriptcannotcontainthe<script>tag
Nowyoucancallthisscript,usingthe“src”attribute,fromanyofyour pages:
<html>
<head>
</head>
<body>
<scriptsrc=”abc.js”>
</script>
</body>
</html>
Variables:Avariableisa “container”forinformationyouwanttostore.Avariable’svalue canchangeduringthescript.Youcanrefertoavariablebynametoseeitsvalueorto change its value.Rules for Variable names:
Variablenamesarecasesensitive
Theymustbeginwithaletterortheunderscorecharacter.
DeclareaVariable
Youcancreateavariablewiththevarstatement:**varname=“SoftBrain”**
<html>
<body>
<scripttype=”text/javascript”>
var name = “SoftBrain”
document.write(name)
document.write(“<h1>”+name+”</h1>”)
</script>

Thisexampledeclaresavariable,assignsavaluetoit,andthendisplaysthe variable.
Thenthevariableisdisplayedonemoretime,onlythistimeasaheading.
</body>
</html>

Lifetime of Variables : When you declare a variable within a function, the variable can only be accessed within that function. When you exit the function, the variable is destroyed. Thesevariablesarecalledlocalvariables.Youcanhavelocalvariableswith the same name in different functions, because each is recognized only by the function in which it is declared.If you declare a variable outside a function, all the functions on your page can access it. The lifetime of these variables starts when they are declared, andends when the page is closed.

Function : Afunctionisareusablecode-blockthatwillbeexecutedbyanevent,orwhen the function is called.

Howtocallafunction.

```
<html><head>
<scripttype=”text/javascript”>
functionmyfunction()
{
alert(“HELLO”)
}
</script></head><body><form>
<inputtype=”button”onclick=”myfunction()”value=”Callfunction”>
</form><p>Bypressingthebutton,afunctionwillbecalled.Thefunctionwillalerta message.</p>
</body>
```

Functionwitharguments : Howtopassavariabletoafunction,andusethevariable value in the function.

```
<html><head>

<scripttype=”text/javascript”>

functionmyfunction(txt)

{

alert(txt)

}

</script>

</head>
```

<body>

<form>
<input type=”button”
onclick=”myfunction(‘Hello’)”
value=”Call function”>
</form></html>
Bypressingthebutton,afunctionwithanargumentwillbecalled.Thefunctionwill alert this argument.
</body>

Conditional Statements : Veryoftenwhenyouwritecode,youwanttoperformdifferent actions fordifferentdecisions.Youcanuseconditionalstatementsinyourcodetodothis. In JavaScript we have two conditional statements:

if...elsestatement- use this statement ifyou want toselect one oftwo sets oflines to execute

switchstatement- use this statement if you want to select one of many sets of lines to execute

IF Condition : You should use the IF statement if you want to execute some code if a condition is true, or if you want to select one of two blocks of code to be executed.If you want to execute only one statement when a condition is true, use this syntax for the if...else statement, like this:

If statement : HowtowriteanIfstatement.Usetheifstatementifyouwantasetofcode to be executed if a specified condition is true

If...else statement : HowtowriteanIf...Elsestatement.UsetheIf...Elsestatementifyou want one set of code to be executed if the condition is true and another set of code to be executed if the condition is false

Visual Basic

Microsoft Visual Programming Language (VPL) is an application development environment designed on a graphical dataflow-based programming model. Rather than series of imperative commands sequentially executed, a dataflow program is more like a series of workers on an assembly line, who do their assigned task as the materials arrive. As a result VPL is well suited to programming a variety of concurrent or distributed processing scenarios.

VPL is targeted for beginner programmers with a basic understanding of concepts like variables and logic. However, VPL is not limited to novices. The programming language may appeal to more advanced programmers for rapid prototyping or code development.As a result, VPL may appeal to a wide audience of users including students, enthusiasts/hobbyists, as well as possibly web developers and professional programmers. In computing,a visual programming language (VPL) is any programming languagethat lets users create programsby manipulating program elements graphically rather than by specifying them textually. A VPL allows programming with visual expressions, spatial arrangements of text and graphic symbols used either as elements of syntaxor secondarynotation. For example, many VPLs (known as dataflow or diagrammatic programming) are based on the idea of "boxes and arrows", where boxes or other screen objects aretreated as entities, connected by arrows, lines or arcs which represent relations.

VPLsmaybe furtherclassified, accordingto the type and extent of visualexpression used, into icon-based languages, form-based languages, and diagram languages. Visual programming environments provide graphical or iconic elements which can bemanipulated by users in an interactive way according to some specific spatial grammar for program construction.

- Aprogramminglanguagethatusesavisualrepresentation (suchasgraphics,drawings,animationoricons, partially or completely)
- Avisuallanguagemanipulatesvisualinformationorsupportsvisualinteraction,or allows programming with visual expressions [Golin 90]
- Any system where the user writes a program using two or more dimensions [Myers 90] A visual language is a set of spatial arrangements of text-graphic symbols with a semantic interpretation that is used in carrying out communication actions in the world
- VPTaxonomyby BurnettandBaker(1994)

Software paradigm, language level, application domain, visual extent (icon, form, diagram).VisualBasicandtheentireMicrosoftVisual(tm)familyarenot,despitetheir names, visual programming languages. They are textual languages

whichuseagraphicalguibuildertomakeprogrammingdecentinterfaceseasieronthe programmer.

ElementsofVisual Programming

- Languageparadigm
- BatchorInteractive
- Visualrepresentationvs. visual object
- Diagrams,iconsorforms
- Numberofdimensions
- Specificapplicationdomain

BasicActivities

The Microsoft Visual Programming Language (VPL) includes a set of basic activities that are used to help create a dataflow program. These blocks are typically used to connect between service blocks, but can also be connected together.

Activity

The **activity** block, sometimes referred to as a Custom Activity, allows you to create your own activities that caneach have theirown set of internaldataflowdiagrams. You can use these to create diagrams that can be represented as single blocks in other diagrams and are used in the same way as the built-in activities. These custom activities can also be compiled into services that can be used with other services or in other VPL diagrams.

Calculate

The **Calculate** activity performs simple arithmetic or logical operations on the expression entered into the textbox. The expression can include numeric values, the **value** from the

incoming message, itsdata members, or predetermined values provided by other services on your diagram.

Fornumericdatayoucanuse:

+	add
-	subtract/minus
*****	multiply
/	divide
%	mod(Themodulusoperationreturnstheremainderafteradivision)

The plus (**+**) operator can also be used to concatenate, combine, strings. This can also be used to combine text, string, and numeric data byusing double quotes, e.g. theanswer is +x/4.

Forlogicaloperatorsyoucanuse:

&& AND

|| OR

! NOT

You can also use parenthesis to support precedence (the order of evaluation) of the expression entered.

Clicking in the textbox of the Calculate block displays a list including the value of the incoming message, any data members in the message, the state variables, as well as predefined values that may be provided by other services.

Variable

The**Variable** activityenablesyoutosetorgetthevalueofavariable.

To choose a variable select it from the drop-down list displayed by clicking on the down-arrowbuttonattheright-handendofthetextbox.

Ifyouhavenotdefinedanyvariablesorwishtocreateanewvariable,select**Define Variables**fromthedrop-downlist,orselect**Variables**fromthe**Edit**menu.Thiswilldisplay

the **DefineVariables**dialog box where you can add a variable and define its type. Variabledatatypesincludeintegers(int),doubleprecisionfloating-pointnumbers(double), strings of characters (string), types of Lists, etc. See Data Typesfor the full list.

Variable names are case-sensitive. So when referencing a variable always be careful touse the same case. Names must also start with a letter and include only alphabetic or numeric characters. No punctuation characters are allowed except for the underscore (_).

Variable activities are simple constructs that support a **GetValue** connection, to get its value, as well as a **SetValue** connection, to set its value. When using the **SetValue** connection, the output connection of the activity also passes a variable on its outgoing connection.

Naming conventions

Uptillnow,wehaveoftenacceptteddefaultnames,Text1,Label1,etc.Inabigproject,this is not good practice as it makes the code harder to read or maintain. Naming conventions use a prefix of three lowerCase letters to identify the type of control, followed by a meaningful name. eg. lblTitle

Strings

- VariableLength
- Compareusingstandardcomparators
- Maximumlengthisabout64Kb
- Minimumlengthiszero
- **Allocated from VB "String Space", so mayrun out of spa**ceevenonsystems with much memory.

Data Types

TheMicrosoftVisualProgrammingLanguagesupports .NETC#styledatatypes.

VPL TYPE	**DESCRIPTION**
bool	Booleanvalues:true,false
byte	8bitunsignedinteger(0to255)
sbyte	8bitsignedinteger(-128to127)
char	character
decimal	fixedpointdecimalnumber(fixedprecisionnumber)

double	doubleprecision(64-bit)floatingpointnumber(approx14significant digits)
float	singleprecision(32-bit)floatingpointnumber(approx7 significantdigits)
int	32bitsignedinteger
uint	32bitunsignedinteger
long	64bitsignedinteger
ulong	64bitunsignedinteger
string	characterstring(text)
short	16bitsignedinteger(-32768to32767)
ushort	16bitunsignedinteger(0to65535)

VPL supports Lists but not Arrays. However, a List can often be used instead of anArray. (An array is a set of variables that are all of the same data type and are accessed via a single variable name and an index. They are usually of fixed length. Lists are more general-purpose and allow you to insert and delete elements anywhere in the list.)

VPLhaslimited supportforarbitraryuser-defined data types.The simpledata structures used in operationmessagescan generallybe used inexpressionsusing"dot notation"to select the members of a class. VPL usually creates a variable called **value** to hold the responsefromanactivity.Ifthisvalue isacompounddatatype(referredtoasaclassor a structure) then you can access its elements(called membersor properties).In the the following example a string property called **FullName** can be obtained from a message: value.FullName To convert from one data type to another, you can use C# *cast* operations. For example, to convert from an integer called **myInt** to a string, use thisexpression:(string)myIntSometimescastsfailbecausethedatacannotbe represented using the new data type.

StrategiesinVisual Programming

Because VPEs employ visual ways of communicating about programs, the visual communicationdevicesemployedby aVPEcanbeviewedasa(limited)VPL.Hence, the strategies used by VPEs are a subset of those possible for VPLs. Because of this subset relationship, much of the remaining discussion of visual programming will focus primarily on VPLs.

VPL Strategies

A common misunderstanding is that the goal of visual programming research in general and VPLs in particular is toeliminate text. This is a fallacy--in fact, most VPLs includetext to at least some extent, in a multidimensional context. Rather, the overall goal of VPLs is

to strive for improvements in programming language design. The opportunity to achieve this comes from the simple fact that VPLs have fewer syntactic restrictions onthe way a program can be expressed , and this affords a freedom to explore programming mechanisms that have not previously been tried because they have not been possible in the past.

Toachievethesegoals,therearefourcommonstrategiesusedinVPLs:

Concreteness: Concreteness is the opposite of abstractness, and means expressing some aspect of a program using particular instances. One example is allowing a programmer to specify some aspect of semantics on a specific object or value, and

another example is having the system automatically display the effects of some portion of a program on a specific object or value.

Directness:Directnessinthecontextofdirectmanipulationisusuallydescribedas"the feeling that one is directly manipulating the object" [19]. From a cognitive perspective,

directness in computing means a small distance between a goal and the actions required of the user to achieve the goal. Given concreteness in a VPL, an example of directness would be allowing the programmer to manipulate a specific object or value directly to specify semantics rather than describing these semantics textually.

Explicitness: Someaspectofsemanticsisexplicitintheenvironmentifitisdirectlystated (textuallyorvisually),withouttherequirementthattheprogrammerinferit.Anexampleof explicitness in a VPL would be for the system to explicitly depict dataflow relationships (programsliceinformation)bydrawingdirectededgesamongrelatedvariables.Immediate Visual Feedback: In the context of visual programming, immediate visual feedback refers to automatic display of effects of program edits. Tanimoto has coined the term liveness, which categorizes the immediacy of semantic feedback that is automatically provided during the process of editing a program

AdvancedIssues

VisualProgrammingandAbstraction

One of the challenges in visual programming research is scaling up to the support of ever-larger programs. This is a greater issue for VPLs than for traditional textual languages (although it certainly can be said to exist in both) for reasons relating to representation, languagedesignandimplementation,andrelativeyouthofthearea.Forexample,someof the visual mechanisms used to achieve characteristics such as explicitness can occupy a great deal of space, making it harder to maintain context. Also, it is hard to apply in a straightforward way techniques developed for traditional languages, because doing so often results in a reintroduction of the very complexities VPLs have tried to remove or simplify.

Recent developments in the area of abstraction have been particularly important to the scalability of VPLs. The two most widely-supported types of abstraction, both in visual and textual languages, are procedural abstraction and data abstraction. In particular, procedural abstraction has shown itself to be supportable by a variety of VPLs. A key attribute to supporting procedural abstraction in a VPL has been consistency with the rest of programming in the same VPL.

VisualProgrammingLanguage Specification

Theone-dimensionalityoftraditionaltextuallanguagesmeansthatthereisonlyone **relationship possible between symbols of a sentence, "next to". Thus, in describing a** textual language in BNF, it is necessary to specify only the symbols in the language, not**the relationship "next to" (which is implied when** onesymbolis written next toanotherina

grammar). However, the multidimensionality of VPLs means many relationships are **possible, such as "overlaps,"0 "touches," and "to the left of," and there is no universally**-agreed-upondefinitionofexactlywhensuchrelationshipshold,orevenhowmanyofthem

may hold simultaneously between the same symbols. Hence, relationships among symbols cannot be left implicit, and traditional mechanisms such as BNF for specifying textual languages cannot be used without modification for specifying VPLs. Much different formalism for the specification of visual languages have been investigated. Grammar-like formalisms range from early approaches like web and array grammarsand shape grammars to recent formalisms like positional grammars, relation grammars, unification grammars, attributed multiset grammars, and several types of graph grammars.

VisualProgrammingandCognitiveTheory

Since the goals of VPLs have to do with improving humans' ability to program, it is importanttoconsiderwhatisknownaboutcognitiveissuesrelevanttoprogramming. Muchofthisinformationhasbeengleanedinthefieldofcognitivepsychology,and psychologist Thomas Green and his colleagues have made many of these findings availabletonon-psychologiststhroughcognitivedimensions,asetoftermsdescribingthe **structure of a programming language's components as they relate to cognitive issues in** programming.

EmpiricalFindings

Worktowardusingvisualprogrammingtechniquestoimprove correctnessand/orspeed in programming tasks has focused primarily on three areas: program comprehension, programcreation,andprogramdebugging.Ofthesethreeareas,themostempirical **studies have been done on VPLs' effects on program comprehension. The res**ults of these studies have been mixed, reportingfindingsfor some kinds of programs or audiences in whichVPLsand/orvisualnotationsarelinkedwithgreatercomprehension,andothersin which strictly textual languages and/or notations have been linked with greater comprehension. There have been fewer empirical studies on program creation thus far, but these studies have produced far more consistent results than the studies on comprehension. Most have reported visual approaches outperforming traditional textual approachesfor this task. Finally, the effects of visual programming are the least studied of allin debugging(and infactthisisalsotrue of classicaldebuggers,which feature the precursors oftheideas ofliveness as now foundinVPLs). Thesestudies havenot found statistically significant improvements for all the aspects studied, but for the aspects in which statistical significance was found, visual approaches including immediate feedback were found to be superior to the static, non-feedback-oriented approaches in most cases.